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HENRY C. PEARSON, Editor

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COTTON FABRICS IN RUBBER MANUFACTURE.

RUBBER manufacturers have had so much to learn concerning crude rubber in its infinitely varying forms, in compounding ingredients, in cures, and in causes of deterioration, etc., that the apparently simple cotton fabrics used have not received the careful and analytical attention that they perhaps demand. Not that the fabrics have not been studied and carefully selected, but the knowledge of the rubber manufacturer has not in many cases been founded upon the prior knowledge of the fabric manufacturer. Hence, it often happens that the nature of a fabric being only partly understood, it is called upon to do service for which it is distinctly unfitted. To handle a fabric successfully, the rubber manufacturer should be able to measure accurately its elasticity, its distortion under strain, its shrinkage under moisture treatment, its altered construction during the process of drying, its absorption of moisture in the store house, its surface loosening of lint or dust from compression in the roll or in handling—all these and more.

All fabric has a certain elasticity, that may be used to advantage or may be a decided disadvantage, depending upon how it is used. This elasticity may be almost wholly removed and the goods given a permanent set. Therefore, as fabric can be coated while either elastic or set, it should be made in the first place to fit the completed article, and this must be determined beforehand, and done in the cotton mills. Goods when received may conform to the purchase specifications before the rubber is applied, but be radically different before they are made up. 200 threads in the warp and 200 in filling to the 10-inch square may be according to specifications, but 192 threads due to elongation or stretching, and 208 to 210 threads transversely caused by contraction may be the count of 10 inches square of the fabric when coated or shaped into place.

The shrinkage, by application of water or other liquid, to obtain a permanent moisture-proof effect is desirable to meet certain conditions. The rubber man may effect this shrinkage when he desires that condition of the fabric, or it may be done unknowingly during some of the processes through which the fabric passes. The fibre is, during its manufacture, subjected to a certain percentage of humidity—a necessary part of the cotton mill man's knowledge. This moisture must be removed in the rubber mill—a necessary part of the rubber man's knowledge. The action of moisture while being absorbed by the fibre, and the action of that same moisture while being driven off from that fibre is a matter upon which a full knowledge has not yet been obtained. Yet some of the laws are determined and their application understood. The goods change during the processes of drying, and a little experimental work will aid the rubber manufacturer to determine just what changes take place, and fit him to allow for them in the finished product.

Goods after being received from the mill are usually stored in cold damp store-rooms, or, at times, where atmospheric conditions are very unfavorable. They may and usually do absorb moisture from the air. Being rolled tightly causes a certain permanent set or fixed condition—not always to the advantage of the rubber man. They are sent out from the mill in a comparatively clean condition, practically free from adhering dirt or loose fibre; but even with the standing of a roll of fabric while awaiting treatment some of the short portions of fibre and finer lint become loosened; and during the drying processes much more of this adhering matter is loosened. This free material is a decided detriment in coating, as whatever portion

of rubber adheres to lint does not adhere to the fabric.

One more point the rubber mill man has learned by experience—that the cleaner, straighter and freer from wrinkles or distortion the fabric, the better will be the results.

In some cases, particularly in the spreader coating, many treat the fabric as of very little value; yet cases can be cited where the application of preventive mechanism would save many dollars spent in restoration. All of which leads up to the very plain corollary that where the cotton knowledge of the rubber man does not mesh with the cotton knowledge of the manufacturer of fabrics there is trouble.

RUBBER CLUB AMBITIONS.

A NOTABLE change in the constitution of the Rubber Club of America was made on the occasion of the annual meeting in Boston, April 29. Heretofore the club has been purely social, and be it remarked particularly successful in that important detail. If matters of trade interest were brought to its attention, committees were appointed to look after them, and then the club's responsibility ceased. Under the amended constitution the club undertakes "the furtherance of educational and scientific research in india-rubber production and manufacture, and the promotion of the welfare of the rubber industry."

The additional class known as "firm membership," with annual fees of $25, is expected not only to bring the needs of the trade before the club in concrete form, but to furnish funds for the correction of evils and abuses—present and future.

The new type of members will not in any way interfere with, or handicap, the original aim of the club, as while they will possess all of the privileges of the active and associate members, their individual or collective efforts, differences, failures and triumphs will be threshed out between themselves, and paid for out of their own pockets.

That the "firm members" will have ample field for work goes without further argument. There is still rubber stealing; there is standardization of rubber, of ingredients, of products; there are unfair tariffs, absurd state laws, overlapping trade-marks, antiquated and injurious trade customs. Effort for the amelioration of abuses of this sort will doubtless be welcomed by the trade, and, if successful, redound to the glory of the club. There might also be efforts to do certain things that will help one class and damage another, which would result in a row. Garden hose manufacturers would not view with equanimity the employment by the mackintosh men of a rain maker in the hose season, for example.

GIANTS OF THE RUBBER TRADE.

THE consolidation of The B. F. Goodrich Co. and the Diamond Rubber Co. is altogether the most interesting news feature in the world's rubber trade this month. It takes very little analysis to see what a distinct advantage both companies secure by coming together. Their plants are side by side, divided only by a narrow street. The active heads of the business not only belong to the same social set, but all have their homes in the vicinity of Perkins Hill, and are likely therefore to be well in touch with each other during business hours and after.

Then, too, department consolidation offers many opportunities for economy over even the present splendid organizations. Instead of two mechanical departments there will doubtless be one, and so on in the consolidation of departments for solid, bicycle and automobile tires, shoes, etc. Such arrangement also in purchasing and selling is right in the line of large economies and greater efficiency.

The shrinkage of 120 selling agencies to one half as many, and the saving in marketing and advertising will naturally be very large.

That the United States Rubber Co. appreciates the strong position that the other corporation holds is, perhaps, reflected in the following paragraph from the president's address at the last annual meeting:

"Among the things that I advocate is the immediate construction by the United States Rubber Co. of the largest and best tire plant in the world in order to meet the growing demand for our tires.

"I feel that we are warranted in this undertaking from my belief that the tire industry is still in its infancy, and that although the principle of the 'survival of the fittest' may be found to apply, the splendid organization of the United States Tire Co. will be able to market a much larger volume of tires than the United States Rubber Co. with its present capacity (although now operating four tire factories) is able to manufacture."

No two companies could be more differently arranged or administered. The factories of the United States Rubber Co. are to be found in Massachusetts, Rhode Island, Connecticut, New Jersey, Ohio, Michigan, Canada, and Illinois. The American factories of the new company are centered in Akron. The United States Rubber Co. makes all lines of rubber goods, with the exception of hard rubber. The

new company makes the same lines, including hard rubber. The United States Rubber Co. plans a new automobile tire plant to equal or excel anything that the new company possesses. It has also as an anchor to the windward its big rubber plantation in Sumatra. Whether or not the Goodrich and Diamond have anything similar nobody seems to know. Certainly their pioneers have been pretty well over the tropical world for the past five or six years. It would, therefore, seem that the rubber trade now has two huge corporations battling for the world's rubber business—a peaceful warfare, and, in the event that the rubber business increases as it has in the past, one that will not alter general conditions or appreciably handicap other manufacturers.

OUR ANTIQUATED PATENT LAWS.

IT is doubtful if Congress in the present swirl of politics will find time to devote to the proper revision of our patent laws; but that they should be revised is a subject hardly open to discussion. Over forty years have elapsed since the present patent laws were enacted. During that time there has been a vast increase in inventions, with accompanying patents, and there have been many developments in the world of economics that render the laws as they stand today in many respects totally inadequate to protect the best interests of society.

The fundamental purpose of granting an inventor the protected benefits of his invention for a certain number of years is not so much to reward him for his achievement as it is to encourage him to continue his activities, in order that society at large may benefit from his work. In other words, it is the permanent welfare of society rather than the temporary advantage of the individual that is the main concern of the law.

Among the unhappy developments since the present patent laws were enacted is the practice, extensively engaged in by some corporations, of purchasing a patent from the inventor, not with the intention of using the patent, but rather with the contrary intention of suppressing it. This condition obviously renders nugatory the whole purpose of the patent law, and the statutes should be so amended as adequately to correct this abuse. It might prove a salutary plan to punish the suppression of a useful invention by a forfeit of the patent. In any event, it is time that our patent laws were revised, and the President's message to Congress asking for the appointment of a commission to investigate the whole patent situation, with a view to recommending desirable changes is possibly the best solution of the problem.

IS THERE A SATISFACTORY RUBBER SUBSTITUTE?

IN dealing with this question in the columns of the "Gummi-Zeitung," a writer remarks that rubber substitutes are known to have the defect of not forming a homogeneous compound with rubber. The particles of substitutes can be accurately detected with the microscope. But from an ideal filling substance for rubber, it is justly expected, that it will dissolve in the substance of the rubber.

This "indifference" of rubber substitutes towards rubber is due to the great divergence in their chemical composition; one being a derivate of glycerine and the other a hydro-carbon. But this indifference is really only an undersirable accessory circumstance; the possibility not being excluded that in conjunction with the saponification of the oils and other combinations, hydro-carbons may be obtained, which through polymerization, sulphurization, or oxidation may give elastic products. In view of the close relationship of such products to rubber, it may be assumed, that they will form homogeneous compounds with the latter in cases where they cannot be used alone in place of rubber.

Such products would be advantageously distinguished from ordinary rubber substitutes by the fact of their not exercising any unfavorable influence upon the substance of the rubber, while ordinary substitutes, through saponification, produce a slightly acid reaction, thereby injuring the rubber with which they are used.

BRAZILIAN DUTIES ON AMERICAN GOODS.

UNDER the existing agreement between the United States and Brazil, the first-named country is accorded a preferential rebate of 20 per cent. of the duty on various articles, including rubber goods, colors, and milk. It is now proposed to increase this rebate to 40 per cent. and, at the same time, to extend it to other articles. The Brazilian Minister of Finance has, however, called attention to a declaration by the Brazilian Congress, to the effect that preferences can only be accorded in virtue of agreements, providing for mutual concessions of that nature. On these grounds the maintenance of the present agreement is recommended by the minister.

While American manufacturers have been making great efforts to push trade with Brazil, the preference hitherto allowed has not been sufficient to produce important results. With this preference doubled and with

the proposed new steamer line from New Orleans to Rio de Janeiro, matters would be different.

The course of American trade with Brazil in manufactures of rubber, as indicated by the statistics published annually by the INDIA RUBBER WORLD, shows the following results for the fiscal years ending June 30:

	1908.	1909.	1910.	1911.
Belting, hose and packing	$11,861	$25,310	$17,470	$34,442
Boots and shoes.	18,962	23,746	20,785	35,548
All other	29,044	35,406	66,890	80,475
Exports of rubber manufactures	$59,867	$84,462	$105,145	$150,465
Imports of rubber	$19,284,856	$34,265,807	$47,321,181	$28,521,865

The most recent statistics to March 31, 1912, show the following results for the first nine months of the current fiscal year:

MANUFACTURE OF RUBBER NINE MONTHS ENDING MARCH.

	1911.	1912.
Belting, hose and packing	$26,027	$30,099
Boots and shoes	25,153	34,728
Tires for automobiles	4,642	9,349
All other tires	5,490	3,738
All other manufactures	46,806	59,439
	$108,118	$137,353

While the amount of rubber manufactures shipped from this country to Brazil is still relatively small, and naturally far below that of the rubber imported from there, the fact of its having nearly doubled within the last two years justifies the hope that with lower Brazilian duties and improved steam communication, a still further development would result.

THE PERENNIAL INVENTION OF TIRES.

THE patent reports for the last twenty years show that over 4,000 patents have been issued at the Patent Office in Washington for tires—chiefly for the automobile, and for tire auxiliaries and accessories. This number does not include that great array of devices in the way of substitutes for tires, as for instance various metal springs to be placed around the hub of the wheel, in the spokes, or in the rim. These 4,000 patents, averaging 200 a year, have been issued simply for tires, or tire parts—most of them for rubber tires.

Surprise is occasionally expressed that inventors should go on year after year applying their energies to this question, when such a small percentage of these devices ever meet with any recognition or success. The surprising feature, however, is not that the number is so large, but that it is not larger, in view of the transcendent reward that awaits the successful inventor. At the present time —including all kinds, automobile, motorcycle and bicycle—about 5,000,000 tires are sold and consumed in this country each year, and the annual outlay is not far from $100,000,000. It is not to be wondered at that, with such a lure, the inventor persists in his work. Charles Goodyear worked, first and last, about 14 years before he found the correct solution of the practical treatment of rubber; and yet, financially speaking, the reward that awaited him was not one hundredth part of the reward that would fall to the man who should discover how to make an easy, serviceable, low-cost tire. When Goodyear died, in 1860, 20 years after his discovery of vulcanization, the whole rubber industry of the United States did not amount to $6,000,000 in annual value, or 6 per cent of the value of the present tire industry.

After having become accustomed to riding on air, it is safe to say that the automobile world will never be satisfied with anything less buoyant and comfortable. The inventor's problem, therefore, is to replace the present pneumatic tire with something just as resilient and easy-riding, but with a greater endurance, and at a marked decrease in expense. Will his problem be solved? In the light of past human experience it is quite safe to say that it will be, if not wholly, at least in part; but there is nothing in the present outlook to indicate that that final solution will in any way dislodge rubber from its present commanding position in the tire world.

BRAZILIAN LEGISLATION GOING INTO EFFECT.

IT is satisfactory to note that the government of Brazil means business. The provisions of the new law (a full extract of which appears in this issue) are not being allowed to lie dormant.

Two-thirds of the surveys connected with the proposed new railways will be finished by June 30, and the completion of the surveys will follow shortly afterwards. It is understood that the government is prepared to spend the equivalent of about $92,000,000 on the new lines, intended for the development of rubber cultivation.

A company is said to have been organized at Bahia (with the co-operation of English capital) for the purpose of establishing a rubber goods factory at that point, under the encouragement afforded by the new measure.

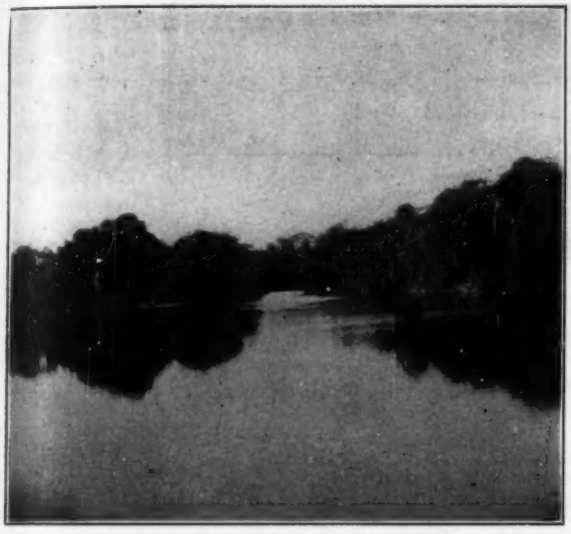
With a view to improving the conditions of rubber cultivation, the Brazilian government is said to be importing a large number of drills of American manufacture. Experts in their use accompany the drills, which are intended for the boring of artesian wells. The government is taking steps to distribute these drills among the various plantations standing in need of them.

Up the Orinoco.

By the Editor of "The India Rubber World."

Columbus and Sir Walter Raleigh.—Views of Other Travellers.—Aboard a Stern-Wheeler.—Crossing the Gulf of Paria.—Daybreak on the Great River.—Birds and Beasts.—Barrancas.—Guayana la Vieja.—San Felix, the Balata Port.—Ashore at Ciudad Bolivar.—The Great Balata Territory.—Gathering, Coagulating and Shipping Balata.—Rubber in the Alto Orinoco. Two New Kinds of Rubber.

COLUMBUS, sailing into the mouth of the Orinoco, believed that he had at last found the site of the Garden of Eden. Sir Walter Raleigh, going further up the great river, went on record that here was to be found the famed El Dorado. Travellers since then have, as a rule, not only been out of sympathy with the two romantic and distinguished gentlemen above quoted, but have gone to the other extreme. The Orinoco has been pilloried as a miasmatic, mosquito-infested, fever-ridden, tropical inferno. As for the country through which it runs, revolution, oppressions and hardships are in the main the burden of their narratives. The fact is one's experiences, good or bad, depend upon the individual, his preparation and his fitness for such a journey. It is possible to be very uncomfortable, to get fever, to get into trouble. It is equally possible to make the journey and suffer not the slightest hardship and enjoy perfect health all of the time.

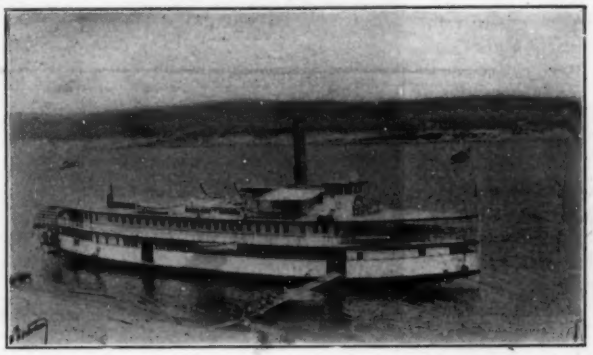


THE LOWER ORINOCO.

SAN FELIX, THE GREAT BALATA PORT.

To go comfortably, one should leave all extraneous baggage behind, forget former impressions of the great river and of Venezuela, and get on terms of friendship with one or more Venezuelan officials. Then it is easy, interesting—nay, fascinating.

Those who have been in the gulf of Paria, and have visited Trinidad, have noted occasional, huge double-decked, light-draught steamboats of the type once used on the Mississippi—



THE ORINOCO STEAMER "DELTA."

"stern-wheelers." These are Orinoco boats, and it was upon one of these, *The Delta,* that we embarked, provided with tickets, that looked like ornate stock certificates, and armed with a declaration viséd by the Venezuelan consul, that our luggage contained only articles for personal use. The lower deck we soon discovered was for baggage and the hammocks of the second-class passengers; the next contained the dining saloon, a well-stocked "cantina," and some twenty large staterooms. This deck was roofed in, but was open at the ends, and a door at each end of the staterooms, together with skylights in abundance, gave fine ventilation and a promise of coolness.

As usual, when it was time to start a late boatload hove in sight and we waited; then after a pause came a later boat;

BARRANCAS.

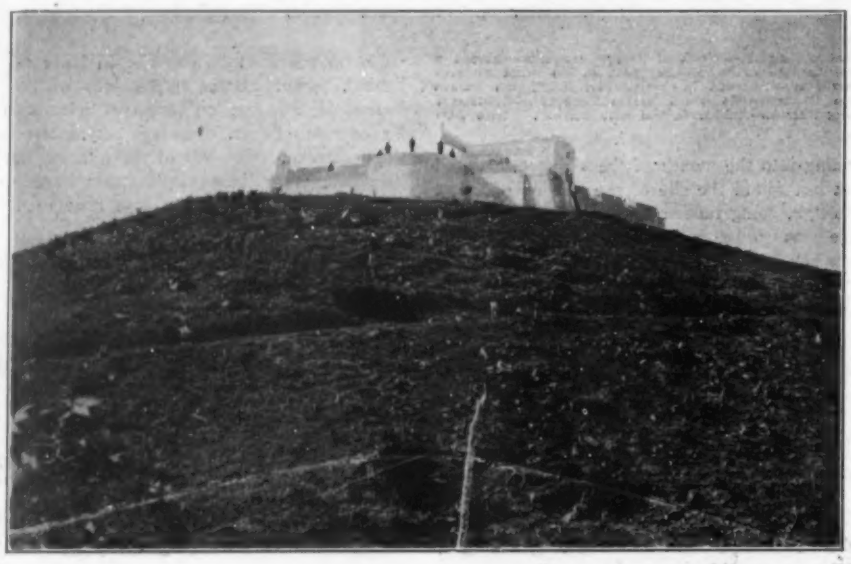
then in frantic haste the latest boat—and then some more. Finally the anchor came up, crusted with sticky clay, and two deck hands with hose and a stiff brush spent half an hour cleaning it while we drifted. At last there came a clanging of bells, and the big boat sedately kicked up her heels and started.

Night fell while we were still ploughing the murky waters of the gulf, and as there was absolutely nothing to do, we went to bed. There were bolts on the stateroom doors, but they

would not work; the mattress was thin and the spring sagged sadly; but sleep soon came in spite of the enthusiastic Spanish conversazione going on in the dining saloon.

At midnight as the boat entered the rough water at the bar that guards the mouth of the great river there was a grand awakening, but it did not last long, as very soon smooth water was reached, and quiet reigned for a time.

The "deckers" began to chatter at daybreak, and there was nothing for it but to get up, take a shower and wait for coffee. Once on deck the glory of the morning amply repaid the loss of sleep. The boat was slipping quietly and rapidly through a placid stream not more than 300 yards wide, and except for the absence of palms, it might have been the "narrows" of the Amazon. There was another difference in the abundant bird life—parrots, great flocks of macaws, white swans, wading birds—white, gray and blue. So near did we run to the shore that the masses of bloom that decked the trees could be plainly seen in all of their varied color and beauty. Once we passed close to a giant tree, in the upper branches of which four great monkeys sat and gazed gravely at us. They were grotesquely colored, red and black, and were said to be the "howlers" which greet the rising sun with roars that would fill a lion with envy.



FORT AT GUAYANA LA VIEJA.

Occasionally a palm-thatched hut was to be seen ten feet above low water mark, and, according to some of the passengers, an equal number of feet below high water.

Fringing the stream were occasional plantings of native corn and bananas. The river banks average from 6 to 10 ft. high, and the country, as a rule, was well forested. The river was low, as it was the dry season, and in many places the lead was kept going, as boats frequently get caught on the sand bars. I had pictured the Orinoco as a muddy stream running through swampy lowlands. In reality it showed more sand than mud banks, and indeed the higher up we got, the more pronounced were the great sand spits that project out into the widening channel.

BIRDSEYE VIEW OF CIUDAD BOLIVAR.

WATER FRONT, CIUDAD BOLIVAR.

CUTTING DOWN BALATA TREE.

Our first stop occurred in mid-stream, when three Indians in a dug-out intercepted us to put a passenger aboard. He, however, apparently concluded not to go after all, secured a bottle of rum and returned to his canoe. In the meantime one of the Indian women sold a green parrot for a couple of strings of beads, so that our fifteen minutes' wait was not wholly in vain.

Further up stream the banks showed a clay formation, mottled red and yellow with a light yellow stratum at the top. They were cut down as straight as if the work had been done by a spade, and with the crown of jungle were exceedingly picturesque.

BLEEDING BALATA TREE AFTER FELLING.

We stopped at the town of Barrancas to discharge cargo and passengers, the latter being a picturesque young American engineer, dressed in khaki, with an ammunition belt and revolver swung over his shoulder, who was on his way to rich iron mines of which he was the superintendent. Incidentally, this ore is all shipped into the United States, and there has not been the slightest attempt on the part of the Venezuelan Government to handicap the enterprise, as yet. We found the steamship *Manzares* anchored here, waiting for the rainy season and water enough to go higher up-stream.

The chief and only industry at Barrancas is a great establishment for packing and tinning fresh meats, and is owned by Germans. From there we turned down-stream and entered another estuary, and then came into the Orinoco proper. The next event of interest was the meeting with *The Masparo,* a small edition of our own craft—with which we exchanged mails, saluted and parted. By mid-afternoon ranges of mountains could be discerned in the distance, and as the sun set we were able to descry on a lofty eminence the two forts of Guayana la Vieja. One of these is untenanted, but in the other is a company of soldiers, whose duty it is to challenge all who pass up the river. In response to our whistle a boat put off, secured the passenger list and allowed us to proceed. This list was at once telegraphed up to the authorities in Bolivar and had any of us been undesirable, they would have been all ready for us.

The main river was fully half a mile wide now, and as the moon was full, it was almost as bright as day. At nine o'clock we stopped at San Felix, the great balata port. About all we did was to put a few passengers ashore with their extremely varied and nondescript luggage. Then on we went in mid-stream under

CAMP OF BALATA MEN, LOWER ORINOCO.

the moonlight. To the right the river bank showed for miles a line of sand so white as to appear almost phosphorescent. Above it loomed the black mass of the forest and the grey black of the sky. On the left bank the jungle came close to the water's edge, except where an occasional great sand flat or a mass of boulders broke the dense shadow.

At six o'clock the next morning we were tied up to the high sandy-terraced bank, above which rises Ciudad Bolivar. Boats do not often anchor here, as the river is narrow and very deep. How deep none seem to know, but a resident merchant said that a German vessel lost 80 fathoms of chain in trying to get a hold on the river bottom. Even if this were at a time of high water it would argue considerable depth. The ancient name of the city, which was Angostura, will be recognized as relating to the narrowness of the river at this point. Although tied up to the bank, no one was allowed to go ashore. So we breakfasted and waited. Finally, about nine o'clock, the Harbor Master came aboard, the gang plank was put in place, and the passengers began to file ashore. During the wait the assistant purser, noticing my Knight Templar watch-fob, claimed me as a brother Mason, told of lodges at Bolivar and Caracas, and secured for me a trusty porter. This porter, yclept Raimon, led us to an excellent hotel and returned in the course of two hours to say that the Customs officials were ready to examine our luggage. So much

OX-CART FROM INTERIOR WITH BALATA.

has been told of the repacity and greed of these officials that we naturally were somewhat nervous. We met, however, only courteous treatment and the promptest possible passing of our luggage. All of which we appreciated.

Balata, from some one of the Mimusops, or rather from several of them, is gathered in Venezuela, chiefly in the great low-lying territory known as the "Territorio Delta." About 100 miles from the sea the Orinoco is divided into five great channels and more than a score of lesser ones. This forms a system of waterways running through a vast heavily-forested country that has never been thoroughly explored, and known only to the Indians who penetrate its fastnesses in search of Balata. It is an important industry in Venezuela, the yearly crop amounting to more than $2,000,000.

It is constantly in evidence, on the river steamers, in heaps on the river bank, in carts, or carried on the heads of porters. The daily papers note its arrival, and on the day we landed "El Annuncio" reported that on the *Balandra Carmen Mariana*, from San Felix, there were 2,221 planchas of balata consigned to J. Acquatella & Co., and 9 to Boccado & Co., while on the *Dos Hermanos*, also from San Felix, Blohm & Co. received 59 planchas; J. Acquatella & Co., 158; Bonada & Co., 12; Pichani-

BALATA PORTERS.

oni & Co., 17, and Dalton & Co., 248. Considering this was not the busy season, this was doing very well.

On receipt the *planchas* are at once cut in half by a huge knife, known as the guillotine, and examined for purity, just as *pelles* of rubber are at Pará and Manáos.

All of the Venezuelan balata is block. One of the handlers explained this as due to the laziness of the native gatherers. They make the block by boiling the latex until it coagulates, and then pressing it into shape. They destroy the trees by cutting them down in spite of the efforts of the government to prevent

BALATA ON SHORE READY TO BE LOADED ON RIVER BOATS.

it. The gathering is done along the banks of the rivers, and while there are plenty of big trees in the interior, it does not pay as yet to send expeditions to gather the gum. The natives claim that when balata trees have been cut down many others at once spring up, so that there is no danger of ultimate exhaus-

tion. San Felix is the great balata rendezvous of the lower Orinoco. Here the *planchas* are brought in small boats or in ox-carts overland, and shipped to the big importing and exporting houses in Bolivar.

That Venezuela possesses great rubber forests none can deny. The vast territory adjacent to Brazil, contiguous to the Rio Negro, the Cassiquiare, and the upper Orinoco produces considerable *Hevea* rubber which comes sometimes down the Orinoco to Ciudad Bolivar, and sometimes down the Rio Negro to Manáos. It will be remembered that the Cassiquiare river forms a navigable channel between the head waters of the Orinoco and the Rio Negro—that is, during the rainy season. This rubber area, said to contain nearly 100,000,000 acres, has never been thoroughly exploited. The *Hevea rigidifolia* is probably the source of the rubber gathered in this territory, and not the *Brasiliensis*. Over toward the border of British Guiana there are also *Heveas*, but whether good or bad, none know as yet. There seem to be no *Hevea* trees on the lower Orinoco. In fact, none can be discovered after several days of journeying above Bolivar, and even beyond the rapids, which are the end of steamboat navigation.

The headquarters for rubber traders—that is, in the upper country—is San Fernando, in the Alto Orinoco, and near the Venezuelan territory of Amazonas. From this point on, it is easy to get from the Government concessions for the exploitation of rubber forests. Many of the tributaries of the great river above San Fernando are said to have no *Hevea* trees at all. But that there are other and new rubber producers is probable. Mr. Kuhn, of the house of Blohm & Co., Bolivar, who do a large business in rubber and balata, showed samples of rubber that were new to me, at least; one called "Caura" closely resembled cameta, while another known to the natives as "Matapalo" was not unlike a fine grade of Niger Gutta. In this upper region there is a goodly population, and in and about the Cassiquiare much rubber is gathered. The gathering starts in September to October and lasts until the floods begin in March or April. The rubber is worked much as it is in Brazil, the tappers laying out *"estradas,"* tapping, smoking, etc., in the time honored way. The laborers, however, are not Cearenses, but native Indians. At the end of the season they gather at San Fernando and barter their rubber for the price in silver then ruling in Bolivar. The annual output is from $800,000 to $1,000,000 worth.

The story of our delightful stay at the Hotel Mononi, at Bolivar, where the food was by far the best we had enjoyed all winter, of visits to the great cattle ranges, of the journey down the river, and how we ran aground, would be in a measure a repetition of what has already been chronicled. Besides, there is also the second Venezuelan trip yet to be described.

(To be continued.)

RUBBER IN THE BELGIAN CONGO.

THE most recent contribution to the existing literature affecting the Belgian Congo is the address of M. Ed. Leplae, the Director General of Agriculture for the Belgian Colonies, delivered at Antwerp on the invitation of the "Association des Planteurs de Caoutchouc."

Planting had been commenced in 1893 of *Manihot Glaziovii*, in 1894 of *Funtumia* and in 1896 of *Hevea*. These first plantings were rather experimental than otherwise, the number of trees, being small. It was only about 1897 that regular plantations were started, and by private enterprise. By 1900 several companies had established relatively important plantations, one of them having over 24,000 *Manihot* trees, while another had 3,000 *Heveas* and 150 *Ficus Elastica* trees.

RUBBER VINES.

About this time there was displayed a general feeling in favor of vines, instead of rubber trees. Large quantities of the former were planted at the government stations and by private individuals. In 1900 the "Afrikaansche Handelsvennootschap" at Iboka had 26,000 rubber vines, and the "Plantations Lacourt" 20,000, while other companies had more than 100,000. By 1910 there were more than 12,000,000 rubber vines on government soil. The vines seem, however, to have proved disappointing as to results, it not having yet been found possible to cultivate them in such a way as to yield a profit in due time. As M. Leplae remarked, the maintenance of vines on an extensive scale is always too costly. The underwood grows so luxuriantly that it chokes the young, very slow-growing plants. Production not having covered expenses, most of these vines have been abandoned in favor of the more profitable cultivation of rubber trees. He added that in all the equatorial colonies the cultivation of vines was regarded as devoid of prospects.

FUNTUMIA.

The first rubber tree planted on a large scale was the "Ireh," or *Funtumia*, the first trees having been planted at Boma in 1894. As a result of the government's co-operation in the work there were by 1910 3,490.000 *Funtumia* trees in the possession of the State.

HEVEA BRASILIENSIS.

Although today so much appreciated, *Hevea* at first only received transitory attention, the generally accepted theory being that *Funtumia*, as an indigenous species, would be more successful in Africa than a foreign variety. Hence the *Hevea* plantations long remained experimental in their character and received all the less attention, as the method of wound-renewal was not yet known. *Funtumia*, the native tree, conquered. The neglect of *Hevea* was likewise due to the fact that at the period in question the first tappings of those trees in Ceylon had been small in yield. The success of modern tapping methods, and the wonderful development of the Malayan plantations were necessary for the revival in the Congo of faith in that species. This development was facilitated by the disappointments to which *Funtumia* had given rise.

Through his personal observation in Malaya, on the occasion of his visit in 1910, M. Leplae was impressed with the conviction that the future belongs to *Hevea*. At first there was much difficulty experienced in getting the seed from Ceylon, but as soon as it was found that old native *Heveas* produced a sufficiency of seeds, cultivation rapidly increased in the Congo.

MANIHOT GLAZIOVII.

Although *Manihot* is well adapted to existing conditions, standing drought and growing in a poor soil, it has only been planted in the Congo to a limited extent. At the same time its cultivation is on an important scale in German East Africa, where there are 14,000,000 trees of this species.

PRESENT CONDITIONS.

The Belgian government owns the following trees this year in the Congo:

Funtumia	3,490,000
Hevea	250,000
Manihot	156,000

In conclusion M. Leplae remarks: "Such is a brief outline of the varied history of rubber cultivation in the Belgian Congo. It teaches us that our rubber plantations are still far from being models, but that we have a good deal to 'modernize' with respect to them."

The Significance of Gravity in Rubber Manufacture.

By Lothar E. Weber, Ph.D.

IT is in large measure due to the ease of its execution that the determination of the specific gravity test is so largely favored by rubber manufacturers. Not only is great importance attached to the gravity of a manufactured article, but in the case of raw materials—compounding ingredients, shoddies, substitutes, etc.—it is the criterion, more so than any other whereby judgment is passed on the goods, provided the samples in question are not chemically analyzed.

Unfortunately, the determination of the gravity as usually carried out, suffers from a basic error, so that the values obtained, if not altogether worthless, are apt to be very misleading. The error referred to is incurred owing to the porosity of the sample. It is obvious that an article which is porous weighs less per unit volume, than if it were entirely free from pores, and accordingly in the former case its apparent gravity is lower. The actual gravity, however, is identical in both cases, although the common method of determining gravity does not reveal it to be so.

From the standpoint of a cost department the actual gravity of an article is of considerable importance. If the goods are to be sold by bulk or linear measure, a minimum gravity is desirable. If, on the other hand, the goods are disposed of by weight, a maximum gravity is aimed at. I am not aware that any manufacturer of compounding materials has succeeded in raising the gravity, actual or apparent, above its normal value. The task would indeed be a difficult one. But it is, on the other hand, a very simple matter to lower the gravity of a sample of whiting, zinc, etc. Needless to say, it is the apparent gravity that is affected in this case, the porosity of the sample having been increased.

In actual practise, this lowering of the apparent gravity is accomplished by bringing the article to a very fine state of subdivision. The number of particles per unit volume is thereby increased, and as the particles are always separated from each other by an air space, the number of air spaces per unit volume is likewise increased. In other words, the porosity is increased, and the apparent gravity lowered. It is therefore to be expected, since the question of porosity is usually disregarded, that a manufacturer of, say, whiting lauds his product simply because the latter is of a lower gravity than ordinary whiting. The salesman will put forth the very plausible argument that by using this particular whiting, the gravity of the mixing will, as a result, be lower than if whiting of ordinary gravity were employed. Whiting, however, being a chemical compound can possess only one gravity, as a fundamental law of chemistry states that every compound has a definite and constant gravity, and chemical laws do hold good, even if manufacturers are somewhat tardy in accepting them.

Since then, this particular whiting owes its lower gravity merely to enclosed air, what will be the fate of the latter in actual use? Under normal conditions, the enclosed air will all be forced out on the mixing mill and the resulting compound will have the identical gravity as if ordinary whiting had been used. The sceptic can readily convince himself on this point by a very simple experiment. Let him mix two compounds consisting in each case of 50 per cent. rubber, 46 per cent. whiting and 4 per cent. sulphur. In one case, let him use whiting of ordinary gravity, in the other case, the whiting of the lower gravity. After mixing and vulcanizing it will be found that both compounds have the identical gravity, in spite of the fact that in one case whiting of lower gravity was employed.

It is fortunate, that under normal conditions, the enclosed air is all forced out. Otherwise, the manufactured article would still retain the porosity due to the whiting, and in this condition it is very prone to decay owing to oxidation and consequent hardening. It is very common among the cheaper reclaimed rubbers, and not uncommon among the more expensive ones, that they exhibit a pronounced porosity. The minuteness of the pores often prevents their perception by the unaided eye, but they are readily discernible by means of a lens. It is to the interest of the shoddy manufacturer to make this porosity as large as possible, as consequent low gravity results. The rubber manufacturer believes that a low gravity indicates a large percentage of rubber, and a comparatively small amount of mineral matter (loading). It will readily be seen in the case of a porous shoddy, that this assumption is somewhat erroneous. A shoddy low in mineral matter must necessarily have a low gravity, but the reverse is only true if the shoddy is non-porous.

Apart from the question of porosity, it is quite impossible to estimate the rubber content of a shoddy from the gravity, in spite of the fact that many manufacturers, as already stated, use the gravity as the only criterion whereby the composition of a shoddy is judged. Litharge having a gravity of over 9, whiting somewhat more than 2, and most of the substitutes being floating, it will readily be seen that by employing these substances in various proportions the gravity of the shoddy can vary between wide limits, and the amount of rubber present remain absolutely constant. If we add to this the error liable to occur, owing to porosity, the doubtful value of the gravity test becomes apparent. In the case of a shoddy, porosity is liable to be a more serious drawback than in the case of mineral fillers, as regards its influence on the resulting compound. It is much more difficult to break up the pores in a shoddy than in a mineral filler, as the latter usually yields quite readily to the action of the mixing mill.

It is very desirable, therefore, to have a ready means of determining the porosity of a sample. From what has already been said it will be perceived that the porosity is really the ratio between the actual and the apparent specific gravities. The apparent specific gravity, always the lower of the two, is determined in the usual way by weighing the sample in air and in water. From these two weighings the volume is calculated, and subsequently the apparent gravity. For the determination of the actual gravity, the sample must be in as a fine a state of subdivision as is possible. This can usually be accomplished by grinding the sample on the mill. If the sample resists this treatment, however, it must be ground by means of a grater or coarse file. A weighed sample of the finely ground product is then introduced into a specific gravity bottle and the latter almost filled with distilled water. Suction is then applied by means of an air-pump till all the enclosed air has been sucked out. The sample is now absolutely non-porous. Subsequently the bottle is completely filled with water and weighed. The porosity p is then expressed by the following formula:

$$p = \left\{ \frac{\text{actual specific gravity}}{\text{apparent specific gravity}} - 1 \right\}$$

For an absolutely non-porous sample, this would give $p = 0$.*

There is one inorganic filler, the gravity of which might, at first sight, legitimately vary. The filler referred to is lithopone. As is well known, lithopone is a mixture of barium sulphate (barytes) and zinc sulphide. The gravity of barium

*For further details regarding this determination, see C. O. Weber, "The Chemistry of India Rubber," p. 227.

sulphate being about 4.3, and that of zinc sulphide 3.8, it is conceivable that by varying the proportion of these two constituents, the resulting gravity of the lithopone could vary. In reality, this is not the case, because lithopone, although a mixture should have a perfectly definite and constant composition, consisting roughly of 70 per cent. barium sulphate and 30 per cent. zinc sulphide. Simply mixing these two chemicals in the proportions stated would not result in the brilliantly white product which we know as lithopone. This is prepared by adding a solution of barium sulphide to a solution of zinc sulphate. There is thereby produced zinc sulphide and barium sulphate, both of which are insoluble and precipitate out. If now any remaining barium sulphide or any remaining zinc sulphate (according to which was used in excess), is dissolved out by means of water, the remaining lithopone will always have the same composition. Accordingly its actual gravity is also constant.

I should not like to be interpreted from anything that has been said above, as being opposed to the employment of compounding ingredients in a fine state of subdivision. But I do wish to point out that a manufacturer who buys a mineral filler of apparently lower gravity, under the impression that its employment will make his compound of proportionately lower gravity, is deceiving himself.

THE FUTURE OF GERMAN COLONIAL RUBBER GROWING.

BASED on his recent visit to the German colonies in East Africa, noticed in the March issue of THE INDIA RUBBER WORLD (page 269), Dr. Eduard Marckwald, of Berlin, lately read an interesting paper before the German Agricultural Society, of which a reprint has come to hand. Having in his previous utterances dealt with the present conditions and prospects of rubber plantations in German East Africa, he has in the above-named paper taken up the broader question of the ultimate vitality of German rubber plantations in general.

Official statistics, quoted in the April issue of the INDIA RUBBER WORLD (page 324) showed the following results:

RUBBER EXPORTS FOR YEARS ENDING APRIL, 1910 AND 1911.

	1910.	1911.
Kamerun .....*tons*	1,518	1,962
German East Africa	474	744
Togo	137	135
German New Guinea	6	8
Total from German possessions...*tons*	2,135	2,849

KAMERUN AND TOGO.

These figures showing for 1911 a total of nearly 2,100 tons exported by Kamerun and Togo, as compared with about one-third that quantity from German East Africa, illustrate and confirm Dr. Marckwald's discrimination between conditions in the first named possessions and those in East Africa. To use his own words: "Labor conditions in Kamerun are relatively satisfactory, the wages being suitable, and the natives capable of undertaking complicated work. The cost of producing *Kickxia* (including freight to Hamburg and selling expenses there) amounts to less than 3 marks per kilo (33 cents per pound)."

Such a price, he adds, renders Kamerun practically able to compete in the world's markets, even if quotations materially recede. His own question he answers in the following terms: "The prospective vitality of Kamerun plantations can therefore be confidently asserted, with the proviso that the trees continue to yield and that they withstand repeated tappings."

With regard to Togo, Dr. Marckwald remarks that owing to the satisfactory labor conditions there prevailing, there is no reason to anticipate the non-success of plantations in that colony, as they are being developed in a favorable and systematic manner.

KICKXIA AND HEVEA IN KAMERUN.

The preponderance of *Kickxia* in Kamerun is indicated by the following official estimate of the trees in that colony at the end of April, 1911:

Kickxia .....*trees*	4,915,865
Hevea	786,270
Manihot	19,343
Ficus	16,686
Castilloa	2,584
Sundry varieties	3,500
Total	5,744,248

In connection with this estimate interest attaches to Dr. Marckwald's anticipation (based upon the climatic conditions existing), that although important yields from the later plantings of *Hevea* are not yet available, that tree, owing to its hardier and more reliable qualities, will gradually supplant *Kickxia*, notwithstanding the lower cost of production in the latter case.

GERMAN EAST AFRICA.

Conditions in German East Africa are, however, radically different from those existing in the other German colonies; all of which, with the exception of Southwest Africa, are more or less interested in rubber. According to Dr. Marckwald's observation, cultivation (not only of rubber) is carried on to an appreciable extent in East Africa by laborers, who are devoid of experience in plantation work, and even ignorant of ordinary agricultural operations. Hence there is no due preparation of the soil and no investigation as to whether the land to be planted is suitable for the purpose to which it is to be applied.

Among the points to which attention is called in the paper, are the more thorough preparation, fertilization and (where necessary) artificial irrigation of the soil, in addition to care in the choice of seeds. Planting trees too closely and at the wrong time is condemned by Dr. Marckwald, following up his previous remarks on those subjects; while the present system of tapping is likewise criticized, as well as the mode of packing.

TO WASH ALL EAST AFRICAN RUBBER IN EUROPE?

After dealing with the unfavorable conditions now attending the washing of rubber in German East Africa, which, it is remarked, are largely due to the present system of tapping, Dr. Marckwald suggests, until the question of tapping is settled in a satisfactory manner, the establishment in Germany of a rubber-washing plant, through which all East-African plantation rubber would have to pass before reaching the market. Such an establishment would be under official and permanent expert superintendence, and of a size capable of washing one ton per day, and would not cost more than the equivalent of six to seven thousand dollars. In this connection reference is made to the new machine of Werner & Pfleiderer, in which there is scarcely any friction, with the result that the rubber is subjected to milder treatment than is now usual in the process of washing.

While referring to the partial progress in the direction of the needed reforms, made during his recent visit to German East Africa, Dr. Marckwald expresses the hope that the question of producing rubber, satisfactory both in quality and quantity, will be solved through serious work; thus facilitating the establishment of a standard quality of rubber, which matter has become a vital question for the German colonial possessions. Without cheaper and better products, he adds, the rubber plantations of German East Africa are doomed to hopeless failures.

A BOOK for rubber planters—Mr. Pearson's "What I Saw in the Tropics."

THE accepted authority on South American rubber—"The Rubber Country of the Amazon," by Henry C. Pearson.

The First Annual Aero Show.

THE Aero Club of America, under whose auspices the First Annual Aero Show was held in the Grand Central Palace in New York City, from May 11 to 18, has every reason to be satisfied with the result of that exhibition. To be sure, the average citizen did not flock there as he would, for instance, to a moving picture show of Jack Johnson in action. To the average man, one aeroplane in the air is worth twenty on the floor; but still, the general attendance was very fair, and the special attendance—that is, the attendance of people specifically interested in aeronautics—was not only excellent, but highly appreciative. It is safe to say, that everybody directly or indirectly interested in this new branch of science visited the show, and derived a great deal of profit from his visit.

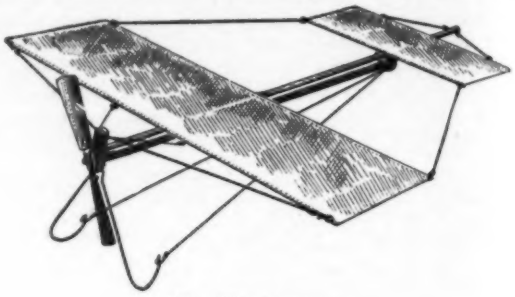
It was an exceedingly instructive exhibition and well worth a detailed description; but it does not lie within the province of this publication to treat it in its entirety, but rather in its relation to the rubber industry. There were four rubber exhibits—three of them coming from Akron; namely, those of the B. F. Goodrich Co., the Goodyear Tire & Rubber Co. and the Diamond Rubber Co., and one from outside—that of the Pennsylvania Rubber Co., of Jeannette, Pa.

Of these four exhibits, the most complete was that of the Goodyear Tire & Rubber Co. in charge of E. R. Preston. The

THE EXHIBIT OF GOODYEAR TIRE AND RUBBER CO.

pre-eminence of this exhibit was natural in view of the fact that the Goodyear Tire & Rubber Co. has been the pioneer in this line of endeavor. The Goodyear Company has been working on aeronautic supplies for the last two years, in conjunction with the leading aviators. As a result, it has made very creditable progress in four different lines—the manufacture of aeroplane fabrics, the manufacture of balloon fabrics, the making of special aeroplane tires and in the manufacture of shock-absorbers. It makes nearly a dozen different aeroplane fabrics, running in weight from four to seven ounces per square yard. Three prime considerations enter into the making of these fabrics; first—tightness, as obviously it would never do for the planes of a flying machine to be tight one day and loose the next; second—strength, which is a vital necessity, and third—lightness, which is eminently desirable. The balloon fabrics range in weight from 4¼ to 15 ounces per square yard. There is one essential difference between these two kinds of fabrics; in the aeroplane fabrics the rubber becomes virtually a part of the fabric, the two are one, while the balloon fabric is made of various plies of alternating rubber and fabric.

The tires in use on aeroplanes must, of necessity, be exceedingly strong for their weight, as they have to withstand—particularly in the case of amateurs—very hard treatment. In an



TOY MONOPLANE.

amateur's hands an aeroplane not infrequently strikes the ground like a load of brick; a professional, on the other hand, generally—not always—alights on the earth without a jar.

The shock-absorbers, which are molded pieces of rubber from 14 to 18 inches long and about 1½ inches in diameter, have to be made extremely strong to serve their purpose; they have an ultimate stretch of 228 per cent. Another interesting device for aeronauts, which is as yet in somewhat of an experimental stage, is a rubber life preserver which fits around the body like a jacket, coming down over the head and shoulders and buckling around the waist. Deflated it occupies very little room; in a moment's time, with a little exercise of the lungs it can be inflated and will keep a man afloat indefinitely.

The B. F. Goodrich Co. has but recently embarked on the manufacture of aeronautic supplies, but it had a creditable exhibit at the show, consisting of aeroplane fabrics and tires. In fabrics its specialty is "Lumina" aeroplane cloth, being so called because it is a light rubberized fabric covered with aluminum dust, which not only protects the rubber from the effect of the sun, but, inasmuch as it can be re-dusted at any time, keeps the cloth clean and presentable. In tires, its specialty is its double-tube 24 x 4-inch tire for biplanes. The Diamond Rubber Co. had a like exhibit of tires and fabrics, while the exhibit of the Pennsylvania Rubber Co. consisted exclusively of tires.

No description of the rubber exhibits at the show would be complete that did not include the display of toy aeroplanes run by the motive power of rubber bands, shown by F. A. O. Schwarz. He displayed these interesting toys in a great variety, ranging in price from 35c. to $35. Their flight capacity runs anywhere from 200 to 1,000 feet. The method of operation is extremely simple. Each of these miniature aeroplanes is provided with a number of rubber bands running the entire length of the machine. By revolving the propeller, these bands are twisted. After they are twisted to the limit, the toy is given a toss in the air, and the untwisting of the bands revolves the propeller and carries the machine very rapidly through the air. It is a toy of French invention, but during the last two years it has become exceedingly popular in this country, thousands of them having been sold, and scores of them being in operation in the larger city parks and in the suburbs any pleasant Saturday afternoon.

Mr. T. Maldon Fitch, rubber and coffee planter on the Pamanoekan & Tjiassem Estates (Anglo-Dutch Plantations), Soebang, Java, has just been elected a Fellow of the Linnean Society of England.

New Brazilian Legislation.

AN examination of the text of the new Brazilian law as approved on January 5 by the President, shows it to be a carefully formulated measure, covering rubber in all stages of importance from the soil to the outgoing steamer. These provisions may be considered under the heads of those directly referring to rubber and those bearing upon conditions more or less accessory to its cultivation, by their influence upon the cost of production.

A—CULTIVATION.

That the high cost of producing rubber in Brazil is due to the excessive cost of living and transportation, has been pointed out by various leading authorities, and it is to these points, as well as to the direct promotion of rubber cultivation that the new legislation is directed. One of the principal objects in view being economy in cultivation, the exemptions provided by the first article of the bill (summarized in the March issue of THE INDIA RUBBER WORLD, page 266) form an appropriate introduction to its subsequent provisions. This clause provides for the free admission of all utensils and materials intended for the cultivation of *Hevea, Caucho, Maniçoba* and *Mangabeira,* as well as for the collection and preparation of rubber extracted from those trees. Rapidity of customs procedure is enjoined by the bill.

Another feature of the encouragement of rubber cultivation, under the new legislation, is the establishment, by Article 2, of prizes for successful planters, in two broad divisions—newly cultivated and replanted lands.

In the former class they are graduated as follows, per group of twelve hectares (30 acres):

	Milreis.
Hevea	2:500 = $833 gold
Caucho or *Maniçoba*.....	1:500 = $500 gold
Mangabeira	900 = $300 gold

In the latter class they are graduated as follows, per group of twenty-five hectares (62½ acres):

	Milreis.
Hevea	2:000 = $667 gold
Caucho or *Maniçoba*.....	1:000 = $333 gold
Mangabeira	720 = $240 gold

These prizes may be claimed one year before the first crop, upon verification of the ground having been fully improved and the trees properly treated. A yearly increase of 5 per cent. since period of planting, is added to in the value of the prizes where the planters can prove the parallel cultivation throughout their property, of plants of industrial or alimentary utility.

Recognizing the importance of the training and instruction of planters, provision is made upon that subject in Article 3.

The government is to establish at a point selected for the purpose, an experimental station, or camp of demonstration, for the cultivation of *Hevea* in the Territory of Acre, and in each of the States of Matto Grosso, Amazonas, Pará, Maranhão, Piauhy and Bahia; as well as for the cultivation of *Maniçoba,* in conjunction with that of *Mangabeira,* in each of the States of Piauhy, Ceará, Rio Grande do Norte or Pernambuco, Bahia, Minas Geraes, S. Paulo, Goyaz, Parana and Matto Grosso.

These stations will furnish gratuitously to all interested persons asking for them, selected seeds, with instruction as to the most practical and economical method of cultivation.

B—EXPORT DUTIES.

Relegated from its original position in the bill under old Article 4, the question of the modification of export duties is treated in a new article—12—in the following terms:

"The Executive Authority is empowered to enter into agreement with the States of Pará, Amazonas and Matto Grosso, with the object of attaining a yearly reduction of 10 per cent. up to the maximum limit of 50 per cent. of the present amount of export duties collected by the States upon the *Hevea* rubber produced in its territories, and exemption from all export duty for the term of twenty-five years, counting from the date of this law, of rubber of the same quality and origin collected from cultivated plantations."

"As soon as this agreement has been made, the Executive Authority will issue a decree, applying the reduction made by said States to the export duty collected on rubber from the Federal Territory of Acre, and conceding like exemption as to cultivated rubber."

C—RUBBER REFINING AND MANUFACTURE.

The above objects are provided for in new Article 4 under separate heads. A premium up to milreis 400:000 ($130,000) will be awarded to the first *Hevea* refining plant which shall reduce the different qualities to a uniform and superior export type, and which shall be established in each of the cities of Balem (Pará) and Manaos. A premium equalling $33,000 gold will be awarded the first plant for refining both *Maniçoba* and *Mangabeira* rubber, to be established in each of the States of Piauhy, Ceará, Rio Grande do Norte, Pernambuco, Bahia, Minas Geraes and S. Paulo.

Encouragement is afforded for rubber manufacturing by a provision for a premium up to milreis 500:000 ($160,000 gold) to the first plant for manufactures of rubber to be established in Manáos, Belem (Pará), Recife, Bahia and Rio de Janeiro. In order to be entitled to the favor specified in this article, it is necessary for the factory to have paid-up capital equalling four times the value of the premium.

D—TRANSPORT.

The above are the provisions directly bearing on the rubber industry. There are accessory conditions, which are dealt with in other articles providing for the new railways and improved river navigation necessary to facilitate and cheapen transport. Under Article 6 it is provided that:—

"In order to facilitate transports and to diminish cost of same in the Amazon Valley, the government will get executed within the shortest time possible the following improvements and supplementary measures:

1. Construction of narrow gauge railways along the Rivers Xingu, Tapajos and others, in Pará and Matto Grosso, and the Rivers Negro, Branco and others in Amazonas, and penetrating into the valleys washed by them; by public competition in accordance with the law of December 13, 1903, or at a rate per kilometer, according to the judgment of the Government and the difficulties presented by the region.

In case of the States of Pará and Amazonas having contracted for the construction of any of these lines. The Government, for the more rapid completion of the work, will grant them an increase of 15 contos per kilometer ($8,000 mile).

2. Construction of a railway starting from a convenient point on the Madeira and Mamore line, near the mouth of the River Abrina, passing through Villa Rio Branco, and through a point between Senna Madureira and Caty; ending at Villa Thamaturgo, with a branch to the Peruvian frontier, through the valley of the River Purus.

The construction of this line will be in accordance with the regulations of the law No. 1,126 of December 13, 1903.

As soon as the first section of the trunk line is completed as far as Villa Rio Braneo the Government will establish

a Custom House at Porto Velho on the River Madeira, and will declare that port open to the commerce of friendly nations.

3. Construction of a railway starting from the port of Belem (Pará), and connected with the railway system at Pirapoa, State of Minas Geraes, and at Coroata, in the State of Maranhão; with the branches necessary to connect the initial or terminal points of navigation of the Rivers Araguayá, Tocantins, Parnahyba and S. Francisco.

This railway will be constructed under the regulations of the law of December 13, 1903, and the construction awarded by public competition.

4. The necessary works will be executed for rendering navigable at all seasons of the year for vessels of certain draught;—the River Negro, between Santa Isabel and Cucuhy; the River Branco, between the mouth and the fort of S. Joachim; the River Purus, from Hyutanahan to Senna Madureira, and the River Acre, from the mouth to Riosinho das Pedras.

The government can contract for the execution of the above works by means of public competition or independently of competition, with one or more suitable concerns, applying the regulations of the decree No. 6,368 of February 14, 1907.

Such are the plans for improved transportation by rail and river; materials and machinery for the improvement of navigation being free from import duties under Article 7.

Similar exemption will be conceded under Article 8, to concerns which, in public competition, will bind themselves to establish depots of coal at a point in the Amazon valley previously indicated, for the purpose of supplying coal to steamers and launches at prices approved by the Government.

E—CEREALS AND PROVISIONS.

Under Article 9 a comprehensive plan is outlined for increasing the available supply of provisions. It includes the leasing of two of the national farms for the cultivation of cereals and for the establishment of packing houses and factories of dairy products, mandioca flour, etc. It further provides for the direct colonization by the government of the national lands forming the S. Marcos farm, with native agriculturists and breeders of horses and cattle. The materials and machinery necessary for the establishment of these farms will be free of import duty. Premiums are offered for the laying out of pastures and farms, as well as the manufacture of packing house and cereal products.

A special exemption from import duties is made with respect to the material needed for establishing a fish curing and packing industry.

F—SANITATION.

The government, under Article 5, is to establish three hospital stations for immigrants at the Island of Flores, at Belem (Pará) and Manáos. Local hospitals under skilled medical supervision are to be opened in the midst of the small agricultural colonies, for the free treatment of patients, the sale of medicines and the diffusion of information on sanitary and medical questions.

G—GENERAL PROVISIONS.

Among the general provisions of the law is one under Article 11, for triennial expositions at Rio de Janeiro, for the encouragement of the rubber industry.

The government is empowered under Article 13 to introduce in the Territory of Acre the same protective measures, which may be adopted in the respective States already named. The adjustment of Acre land titles is provided for in Article 10.

H—EFFECTS OF DROUGHT.

By a previous decree of December 28, 1911, plans were authorized for combating the effects of drought, by observations as to rainfall and other measures.

The carrying out of these measures, it will be noticed, is partly in conjunction with the action of certain States, while a large number of them are directly Federal provisions.

PARA RUBBER EXPORT DUTIES.

AN inquiry addressed to the American consul at Pará relative to the various duties levied on rubber exports elicited the following reply:

"INDIA RUBBER WORLD—Gentlemen: Replying to your request dated April 9, inquiring as to the manner of arriving at the "Pauta" or export tax on rubber in this State. I have to inform you that this duty is of two kinds, Federal and State, the first duty being payable to the local treasurer of the National customs and the second to the State Treasury, both having offices in this city.

"*Federal Pauta.* This applies to all rubber the product of the Acre region and is by law a straight 23 per cent. of the average of the price obtained on sales for each week. In order to arrive at this average price, which is the real 'Pauta,' every broker (licensed official) is required to furnish each Saturday to the chief of the federal customs a sworn statement, giving a detailed list of all his rubber sales, with prices of each grade specified. From these lists of sales submitted, the average price for each grade is obtained and these average prices will be the 'Pauta' or official value, per kilo, for rubber for the coming week. These facts are published in the daily papers each Sunday and govern for that and the succeeding six days.

"*State Pauta.* This duty is collected only upon the rubber, the product of this State. The same mode of procedure prevails as regards the gathering of statistics, except that the local State officials address their inquiries to the receivers and shippers and the average of the prices reported for the different grades, becomes the State 'Pauta.'

"The State duty is made up as follows:

Duty	22.000%
Entrance fee	1.000%
Assessment for the purpose of erecting an exchange, ⅜%	.375%
Municipal tax, 2½% on the duty, (22%)	.550%
Total	23.925%

To this 23.925 per cent. must be added a further charge of 2 reis per kilo wharfage. This notice is usually posted and published each Monday morning and governs for that week. The percentage of Federal tax remains the same, but the other varies slightly in different States.

"GEO. H. PICKERELL, American Consul."

RUBBER PLANTING IN BRAZIL.

Brazilian public opinion in the rubber states, to judge from the report of the commissioners appointed by the Minister of Agriculture, who have been investigating conditions in the Amazon valley, is in favor of a rational and intelligent course of action with regard to rubber planting. The "Brazilian Review," in commenting upon this report, takes the view that it comes a little late in the day, adding that unless the cost of living is reduced, it is difficult to see how Brazil will ever be able to compete on a plantation basis with the East. The journal named has for many years been raising a warning note, which was unheeded, but which is now shown to have been warranted.

THE GENERAL RUBBER CO. OF BRAZIL.

The following circular has been sent out by Gordon & Co., of Manáos and Pará, to that part of the trade interested in the Brazilian crude rubber market:

"Manáos, April 1, 1912.—We have the honor to advise you that the General Rubber Company of Brazil, properly authorized by the Decree No. 9296 of January 3, 1912, of the Government of the Republic, to operate in this country, on this date assumed all the responsibility of the assets and liabilities of the commercial firm which in this city and that of Pará has operated under the style of Gordon & Co., continuing the respective businesses without interruption.—General Rubber Company of Brazil, W. S. Gordon."

The New Edition of "Hevea Brasiliensis."

WITH the object of covering the many important developments of the rubber industry within the last four years, the fourth edition of Herbert Wright's work on "Pará Rubber,"* has been considerably expanded, as compared with the third edition (1908). The text of the 21 chapters (containing 300 pages) of the earlier volume has been supplemented by new matter, and now takes up almost 400 pages; a dozen additional chapters having likewise been added in treating new subjects or developments of special importance; the whole work now containing 530 pages.

The arrangement of Mr. Wright's work conducts the reader in a natural sequence through the various phases of the rubber question. First come the history and botany of the Pará rubber tree; then its various stages up to its giving its yield of rubber. Afterwards follow the subjects of preparation, washing, handling, etc.; then the physical and chemical properties of rubber, testing, vulcanization, etc.; and finally the questions of estimated costs of planting and production.

HISTORY AND PROSPECTS.

In the opening chapter is an interesting table of the various species of *Hevea*, with their geographical and botanical origins, in addition to statistical returns of Brazilian shipments, as well as a discussion of the recommendations of the Manáos Rubber Congress of 1910, and of the measures of encouragement proposed by the Brazilian government for the development of rubber growing. The present and prospective conditions of Asiatic plantations are then fully dealt with, as well as the outturns of the larger companies. The question as to whether Eastern plantations will in time produce three times the Amazon crop is fully discussed, but the position is summed up as follows by Mr. Wright: "The possibility of securing a crop from plantations treble the amount now annually obtained from Brazil may seem optimistic, nay, even ridiculous; but it may have to be faced before 1920."

The chapter on the value of Pará rubber deals with facts which have now passed into the history of the trade, but a record of which adds to the completeness of the work. In a new chapter Mr. Wright deals with the history of rubber plantations in all parts of the world, concluding with an estimate showing the world's planted acreage in 1912 as 1,085,000 acres; the "million acre" line having thus been admittedly passed.

HEVEA RUBBER.

One pertinent remark of Mr. Wright indicates the prospects of *Hevea*: "There are already indications that *Hevea Brasiliensis* will outlive many other species, and it may therefore be confidently anticipated that the countries growing this plant will ultimately predominate as rubber producers."

BOTANICAL SOURCES OF RUBBER.

While the first two chapters of Mr. Wright's work are of general interest to all those connected, in any way, with the rubber trade and industry, those whose interests lie in various special branches will find their particular subjects handled in a detailed and thoroughly comprehensive manner in the succeeding chapters. Thus Chapter III, which has been increased from 8 to 19 pages, keeps pace with the latest discoveries of the rubber botanists of all countries.

GROWING RUBBER.

Growing rubber has two broad divisions: cultivation and tapping, to one of which most items of information are referable. Mr. Wright's closer subdivisions add to the perspicuity of the work and facilitate reference to its detailed features.

Planters and plantation owners will be specially interested in the five chapters dealing with various phases of cultivation:

IV. Climatic conditions for *Hevea Brasiliensis;*
V. (New.) Rate of growth of *Hevea Brasiliensis;*
VI. Planting operations and methods of cultivation;
VII. (New.) Catch and inter-crops;
VIII. Soils and Manuring.

The three chapters on this branch of the subject in the third edition have been enlarged, while two new chapters are added.

The importance attached to this branch of the subject is indicated by the fact that Chapters IV to VIII take up in the aggregate 114 pages, more than one-fifth of the entire work. The new chapters are of special interest; the rate of growth of *Hevea* in various countries being a necessary element of international comparisons; leading up appropriately to the following chapter which deals with the cultivation of *Hevea* in various countries and the means adopted to maintain or increase the regular development of all parts of the tree. In a new chapter (VII) the questions of catch and inter-crops are discussed from a practical point of view. From a financial standpoint Mr. Wright remarks:

> "Why I am inclined to urge the interplanting of more or less permanent products, is that I believe that long before 1920, we shall in rubber plantation companies be far more dependent upon inter-crops thaan we are today. . . . Within seven years it is quite possible that the plantation crop of rubber will be treble the amount we have been in the habit of receiving yearly from Brazil. This means that plantation rubber may, possibly only for a limited period, be sold at or below cost of production. . . . It is because I believe this so thoroughly that I recommend the cultivation of inter-crops in association with *Hevea;* it is a measure of protection."

Finally the question of soils and manuring is dealt with, the space devoted to that subject in 1908 having been increased by one-half. Experiences in various countries are quoted in detail; the question being suggested for consideration of the possible beneficial effect of manuring upon the rubber-producing capacity of the tree.

TAPPING AND YIELDS.

Up to this point the planter or his financial supporter has been investing money in rubber cultivation. Now comes the question of tapping and the yield resulting therefrom, which is the ultimate object of all the previous operations. The various points affecting the details of tapping; how, when, and where to tap; and the effects of tapping— are treated in practical and lucid manner, in amplification of the edition of 1908; two new chapters of current interest being introduced: "How Notable Estates Are Being Tapped," and "Tapping and Yields in the Amazon Region."

The all-important question of yields is now discussed in much greater detail than in the 1908 edition. The general chapter on "Yields of Pará Rubber" has been partly retained, while separate chapters now deal specially with the yields of rubber in the Amazon region; Malaya; Ceylon and Southern India; Dutch East Indies, Borneo, Africa, etc.

PREPARATION.

Nature having now done its share of the work, it now remains for human ingenuity to complete it and to render the product marketable. On the various phases of preparation, including "The Physical and Chemical Properties of Latex"; "Production of Rubber from Latex"; "Purification of Rubber and Washing Machines"; and "Drying of Rubber," the former chapters are ex-

*"Hevea Brasiliensis or Pará Rubber" (4th edition). By Herbert Wright, Ass. R. C. S., F. L. S., London. 1912. Maclaren & Sons, Ltd. [Cloth 8vo, 530 pages; price 15s. 6d.]

panded, while new chapters on the "Theory of Coagulation" and "The Smoking of Rubber" deal with those questions in detail. In connection with the first-named subject, an interesting point is discussed as to the influence of coagulants on the strength of rubber, reference being made to the experiments on that subject of various well-known experts. In a new chapter the smoking of rubber is discussed, including the methods used in that process and its influence upon the strength of rubber. The forms, branding, packing and handling of plantation rubber are treated in another new and interesting chapter.

SEEDS, DISEASES AND PESTS.

These subjects are handled at increased length in continuation of the former edition, with special reference to *Hevea* trees.

ESTIMATED COST OF PLANTING.

In dealing with this subject, the division of the original chapter into others upon "Cost of Production on Estates," and "Estimated Costs of Planting," affords an opportunity of reproducing various interesting detailed estimates of the cost of planting *Hevea* in Malaya, Ceylon and elsewhere.

CHEMICAL AND PHYSICAL CHARACTERISTICS OF PLANTATION RUBBER.

This broad subject and the kindred question of testing, are handled in amplified form in continuation of the former edition and likewise in a new chapter devoted to the character and comparative value of plantation rubber. Among other points treated are those of the complaints frequently made of the lack of uniformity in that kind of rubber, and the factors causing such variability.

MANUFACTURE AND COMPOSITION OF RUBBER ARTICLES.

At this point rubber enters into a new stage, that of its use in manufacture, subject to new conditions. In this connection the various subjects of masticating and mixing, calendering, vulcanization, as well as the heat and cold cures are dealt with, as also the question of the direct use of latex.

SYNTHETIC, RECLAIMED AND ARTIFICIAL RUBBER.

The various forms in which it has been attempted to furnish practicable substitutes for rubber are concisely handled.

NO IMPORTANT DISUSE OF RUBBER.

In his concluding remarks, Mr. Wright emphasizes the fact that notwithstanding the substitution of other materials for rubber in connection with certain purposes, great advances have been made in the number of purposes for which rubber can be used; while an increased demand has been established in other directions in which that product has long been employed. In his opinion the disuse of rubber will not be of any consequence so long as the demand in old applications continues to grow at such rapid rates.

Mr. Wright's work shows a remarkable grasp of the many details with which it deals, while his individual opinions, as expressed on the various subjects treated, impart a marked personal interest to the contents of the volume.

PREMIUMS FOR RUBBER PLANTING IN ECUADOR.

By a law enacted in 1904, the government of Ecuador was authorized to pay a premium equaling five cents for each rubber tree planted in the national territory. Through an executive decree of December 21, 1911, the conditions attached to these premiums are specified. They are available for plantations with more than 500 trees, at an elevation of more than 1,640 feet above the level of the sea, with an average temperature not less than 72 degrees Fahrenheit. The separate trees must be from 13 to 20 feet apart, so that there are not more than 250 to an acre; they must have attained the age of five years and have an average diameter of 16 to 18 inches at a height of 40 inches from the ground. Two experts, appointed by the government, will investigate the merits of the claims presented.

A POPULAR WEEKLY ON RUBBER MATTERS.

The "Saturday Evening Post," in a recent issue, contains the following paragraph relative to the United States Rubber Co. and the rubber outlook in general:

There are under rubber cultivation in the Far East some 875,000 acres, and the United States Rubber Company expects to obtain from its own plantations 25 per cent. of its supply within three years and 75 per cent. within five years. The acreage aforenamed is likely practically to double the world's product of about 75,000 tons within six years. What the world's consumption of rubber will be six years from now is beyond present power of conjecture. That it will increase is certain; and so, likewise, may the area devoted to the growing of rubber trees be enlarged. Until lately the bulk of the rubber has come from the wild rubber trees of Brazil, but the practicability of the development of orchards privately set out and cultivated has now been fully demonstrated To what extent the manufacturers of rubber goods will divide the benefits of cheaper rubber with the consumers of their goods is past saying. The dividend plans of the United States Rubber Company attest expectation of enlarged profits for the manufacturer as the consequence of cheaper and more stable prices for crude rubber. Stability of prices for crude rubber will obviously lessen the capital required to carry a supply of this commodity. Enlarged production by rival interests should diminish likelihood of corners being formed in the article, although this alone may not positively guarantee immunity from that danger. The United States Rubber Company has its own company engaged in the cultivation of rubber, and by supplying itself from that source the expense at least of several middlemen will be avoided, for the crude rubber industry is peculiarly subject to an excess of middlemen's profits."

PORTABLE WATER BAGS.

A PORTABLE and very easily handled water bag to be carried on horse or mule is shown in the accompanying picture. These bags are double, made of 12-ounce canvas, waterproof, about 28

PORTABLE WATER BAGS TO BE CARRIED ON HORSE BACK.

inches deep, and are closed with a flap that can be held down when being transported. They are joined together with a saddle portion that goes over the back of the animal. The capacity of this double bag is 20 gallons. It has been found very convenient in the army service.

An American consular officer in the Far East reports that a company in his district wishes to make connection with American firms desirous of purchasing rubber in that region, and is prepared to enter into contracts with firms for the supply of this product.

THE RUBBER TRADE IN BOSTON.

By a Resident Correspondent.

BUSINESS seems to hang fire somewhat, because of the backward season. That is the reason given by many, but the makers of rubber clothing have no complaints to make of the weather. The demand for automobile tires has somewhat slackened down, most of the consumers' demands being supplied, and a temporary lull is expected, until the duplicate demand comes later. This, however, is not the universal opinion, for some of the tire people report business on the increase, rather than otherwise. Mechanical goods continue in comparatively moderate demand, and the tendency to purchase supplies from hand to mouth still prevails. Rubber footwear has sold well up to the first of this month, on account of the extra five per cent. discount offered.

* * *

A gentleman connected with the trade, who has just returned from a business trip in Canada, states that every line of rubber manufacture there is extremely active, and the whole trade most optimistic, as regards both present and future business.

* * *

George A. Alden & Co. have taken up the selling of deresinated pontianac, prepared by the Acushnet Process Co., of New Bedford, Massachusetts, and are placing large amounts of this valuable gum with manufacturers who find it most valuable from every practicable standpoint.

* * *

Ernest Jacoby, well known in the rubber trade, is now manufacturing a rubber substitute, and under the name of Ernest Jacoby & Co., has already developed an excellent business for his product. He has secured the services of two English experts in this line, and he claims that the substitute turned out is equal, or superior, to any English or American material of this nature. The office is at 79 Milk street, and the factory at South Boston, and the demand has so increased that he is considering seriously adding to the factory capacity. The house is represented in New York City by Hermann Weber.

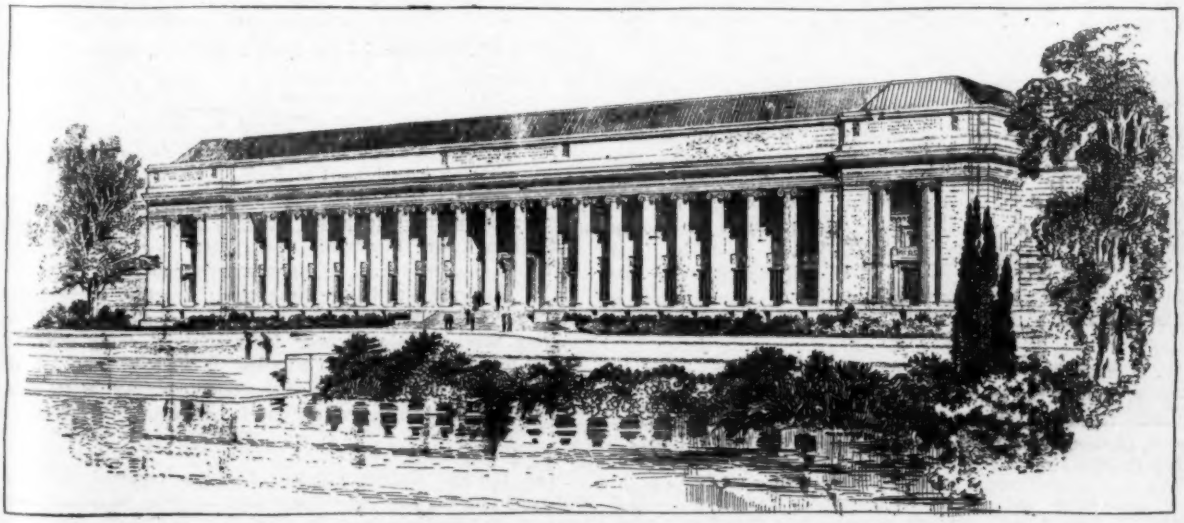
* * *

Last month mention was made of the award for decorations of the Children's Room in the new Forsyth Dental Infirmary. The first prize was awarded to Mrs. Florence Lyley Young, whose subjects were "Roxbury Giant," "Hiawatha" and "Rip Van Winkle." The last-mentioned design is shown here. It is in three sections. The first shows the hero playing with the children. The descriptive panel reads "Rip Van Winkle was a favorite with the children." The middle panel shows him nearly asleep with the dwarf coming over the hill. The legend is "Rip Van Winkle hears a voice calling him." The largest section shows "Rip Van Winkle's return to the village." The decorations are to be done in tile, and are eminently fitted to adorn the room where children will assemble and wait for treatment at this great charity made possible by the Forsyth family.

FRIEZE IN CHILDREN'S ROOM IN THE FORSYTH DENTAL INFIRMARY.

* * *

Mention has been made in previous letters of the magnificent gift of Mrs. Robert Dawson Evans to the Boston Museum of Fine Arts as a memorial to her late husband. In this issue we are pleased to show the architect's drawing of this prospective gift. It shows a noble building in the Greek-Ionic treatment, with a row of 22 fluted columns reaching from the paved terrace to the roof of the structure, which will be situated facing



ROBERT D. EVANS MEMORIAL ADDITION TO THE BOSTON MUSEUM OF FINE ARTS.

the widest part of the Fenway Basin, which will reflect the classic colonnade and add beauty to this portion of Boston's park system.

The museum, as opened three years ago, was far from fulfilling the plans of the management, but was completed as far as funds on hand warranted. Pictures are now installed in space which, in the ultimate development of the whole building, was not intended for picture galleries. This memorial building will embody all the features and requisites which years of experiment and investigation have proven desirable.

The new building is to be 300 feet long and 90 feet wide. The principal exhibition space will be on the main floor, the ground floor to be used for secondary collections, study rooms and administration offices. The principal entrance is from the Fenway, and opens immediately upon a monumental staircase, leading to a landing on which will be placed a tablet in memory of Robert Dawson Evans, who was one of the trustees of the museum and a special lover of paintings. The stairway here divides into two semi-circular stairways, bringing the visitor to a hall or lobby, in the center of the building, from which lead entrances to picture galleries. First come small rooms in which will be hung works of the early masters. Then come other galleries chronologically arranged, where works of the different schools of painting will be grouped together.

The building will be provided with a special ventilating system, which will not only supply fresh air at all times, but this air will be humidified to avoid danger of too great dryness, a trouble noted in many galleries which are heated by steam or other means.

The design, which is the work of Guy Lowell, is peculiarly well handled, and will result in a most pleasing vista in this beautiful parkway.

* * *

A handsome new cruising boat was anchored in Boston harbor the middle of last month, which was seen and admired by some of the rubber men. It is the property of Chas J. Davol, of the Davol Rubber Co., who is exceedingly proud of his new craft, in which he will cruise the waters of Narragansett Bay, and go to and return from business to Wildacres Farm in Kingston. The cruiser is equipped with two six-cylinder gasoline engines, and develops a speed of 15 miles an hour.

* * *

The Hub Rubber Co. has been formed in this city for the purpose of pushing the sale of Boston (Hub) rubbers up to the full capacity of the two great mills of the company in Malden. George H. Mayo, of this city, is president and Joseph S. Capen is selling agent. Both these gentlemen are well known to the readers of THE INDIA RUBBER WORLD. The Boston office is at 174 Congress street, and the New York branch at 60 Thomas street, the latter in charge of John J. Cassidy, formerly of the Merchants' Rubber Co. The company will inaugurate an extensive and thorough advertising campaign to make known the value and style of Boston (Hub) and Bay State rubbers.

* * *

E. M. Freeman & Co. opened an office at 294 Washington street, Boston, early in the year for the sale of crude rubber. They are in daily receipt of offerings from representative New York concerns, and are becoming well known among the manufacturers of New England.

THE B & R RUBBER CO.'S OLDEST EMPLOYE.

George W. Whitman, a master mechanic of the B & R Rubber Co., has been with that company ever since it opened its works in North Brookfield, Massachusetts, nearly 23 years ago. In point of service he is the veteran of the factory's force. He has had charge of the installation of the company's machinery, and is very expert in this work.

THE RUBBER TRADE IN CHICAGO.

By a Resident Correspondent.

THE first two weeks in May were bad ones for the rubber trade in Chicago. Instead of bringing forth flowers they brought cold, damp rains which dampened the business of dealers in both tires and garden hose. On all sides were heard complaints that business was "pretty good" but that the weather had kept it from being a lot better. Still even the weather has its compensations, for as one dealer put it, "when garden hose is not needed, rubber boots and shoes are."

* * *

President W. P. Cowell, of the Cowell Rubber Co., has now taken up his residence in Chicago. The company's store in this city was opened last August and since that time business has increased to such an extent that Mr. Cowell decided to remove to this city from Pittsburgh. The business in the Smoky City shows a very healthy condition, however, and Mr. Cowell makes frequent trips between the two stores.

The officials of the company report that they are greatly encouraged by the increase in trade on their new style, high-grade portable tubings for lamps, stoves and general use. They use a special rubber called their "Sandow," with a variety of braided coverings, a decided improvement over the old style wire and glue tubing.

* * *

Frank D. Mayer, general manager of the Essenkay Co., 2120 Michigan avenue, recently received a telegram from Otto Hook, who wagered $1,000 on his ability to travel from Chicago to San Francisco in his car with Essenkay-equipped tires without one puncture or blowout. The message read: "Reno, Nev.—I am now starting on my last lap. Will win without a doubt. Have not had a single puncture or blowout so far. The roads have been terrible—absolutely beyond power of description. Went 250 miles before coming into Reno over trails filled with sharp pointed rocks and fragments of quartz, where no other automobile has ever traveled." Mr. Mayer expressed little surprise and said that tire trouble in transcontinental touring has become a thing of the past since the introduction of "Essenkay."

* * *

Mr. C. A. Eldridge, of the Duck Brand Co., reports business as "booming."

* * *

Chicago motorists who will attend the events at the Indianapolis speedway are delighted with a comprehensive route book which is being issued by The B. F. Goodrich Co., makers of the famous Goodrich tires. The map shows all the principal cities and intermediate points between Buffalo and St. Louis and Chicago and Louisville. The routes are very fully and carefully described, with mileages clearly indicated.

The Goodrich Co. has a large series of other route books, some already issued and others nearing completion, and their touring bureau is always open for tourists planning trips into unfamiliar regions. Crews are now in various parts of the United States gathering data for guides covering 20,000 miles of road from Maine to Oregon, and from Canada to Mexico.

* * *

The Chicago Rubber Clothing Co. has removed its headquarters into the new North American building, State and Monroe streets, one block from the "busiest corner" in the city.

* * *

"Although every-day service is what we build for, rather than for contest work, it is to be noted that Ajax tires have done good work in speed and endurance competitions when casually selected as equipment," says J. C. Matlack, secretary of the Ajax-Grieb Rubber Co. "The choice must be casual as

we have no racing types. The Maxwell that won the light car race at Santa Monica used Ajax tires and got through with a minimum of tire trouble. Ajax shoes were on the Maxwell cars that took the main prizes in the most recent Glidden tour and on a perfect score Columbia, too."

THE RUBBER TRADE IN AKRON.

By a Resident Correspondent.

MERGER OF GOODRICH AND DIAMOND RUBBER COMPANIES.

THE officers of The B. F. Goodrich Co. and The Diamond Rubber Co. have completed an arrangement whereby these two companies are to be consolidated as one plant under the name of The B. F. Goodrich Co., with a capitalization of $90,000,000. This is done for the purpose of economizing the cost and sales expenses and to give additional financial prestige.

The following is the notice sent to the stockholders of The B. F. Goodrich Co.:

AKRON, Ohio, May 18, 1912.

TO THE STOCKHOLDERS OF THE B. F. GOODRICH CO., AN OHIO CORPORATION:

You are hereby notified that the contract unanimously adopted by the stockholders of The B. F. Goodrich Co., an Ohio corporation, at their meeting held on Monday, March 27, 1912, has been fully performed, and all of the property and assets of every nature and description of the Ohio corporation have been conveyed and transferred in accordance with said contract to The B. F. Goodrich Co., a New York corporation, and the agreed amounts of stock of the latter company, both preferred and common, have been issued to The B. F. Goodrich Co., an Ohio corporation, and (except such amount of said stock as has been sold to the Bankers pursuant to the terms of said agreement) will be held by it for the period mentioned in said contract before being distributed to its stockholders.

In the meantime, the board of directors of the said New York corporation, on which board are all the officials and a majority of the directors of the Ohio company, have unanimously authorized (subject to the approval of the stockholders of the New York corporation) a contract dated May 8, 1912, providing for the purchase by the New York corporation of all the property, assets and good will of the Diamond Rubber Co., of Akron, Ohio (save certain reserved moneys), in consideration of the issuing by the New York corporation, in full payment therefor, of $15,000,000 of its increase preferred stock, and $30,000,000 of its increase common stock, and a certain other contract dated the same day between the said New York corporation and The Diamond Rubber Co., Goldman, Sachs & Co., Lehman Brothers, Kleinwort Sons & Co. and L. A. Hardy, and certain notes, letters, memoranda and other papers supplemental to said contracts have been delivered. These contracts and other papers supplemental thereto, copies of which are on file and may be seen at the New York and Akron offices of the New York corporation, will be submitted to the stockholders of the New York corporation at a meeting thereof duly called and to be held on June 3, 1912, at the New York office of the company, at which meeting resolutions will be offered authorizing and providing for the increase of the capital stock (both preferred and common) of the New York corporation to the amounts required to perform said contract of purchase. The officers and directors of the Ohio company heartily approve and recommend said contract.

All present issued preferred and common shares of the New York corporation (saving only that issued to the bankers and their nominees under contract bearing date March 16, 1912, and twenty shares subscribed and paid for by the incorporators of said corporation) stand of record in the name of The B. F. Goodrich Co., an Ohio corporation, and will be voted at said meeting by said company. But before voting said shares of stock of the New York company in favor of said contract for the purchase of the property and assets of said The Diamond Rubber Co., and for the increase of the capital stock of the New York corporation The B. F. Goodrich Co. (of Ohio) and its officers desire the approval of their action by the company's stockholders of record at the time of the closing of its books on April 6, 1912, for the reason that the shares of said preferred and common stock held by the company are at the expiration of the time limited in the agreement of March 16, 1912, to be distributed among the stockholders of the Ohio corporation.

You are, therefore, requested to execute and mail to C. B. Raymond, secretary of The B. F. Goodrich Co., an Ohio corporation, at Akron, Ohio, the enclosed consent, in the enclosed stamped envelope.

As time is of the essence of the contract with The Diamond Co., it is extremely important that the enclosed consent should be signed and returned immediately and, therefore, your prompt attention to this request is desired.

Very truly yours,

THE B. F. GOODRICH CO., An Ohio Corporation.
B. G. WORK, *President.*
C. B. RAYMOND, *Secretary.*

The following is the notice sent to the stockholders of The Diamond Rubber Co.:

May 16, 1912.

TO THE STOCKHOLDERS OF THE DIAMOND RUBBER CO.:

Notice is hereby given that a special meeting of the stockholders of The Diamond Rubber Co. will be held at the office of the company, in Akron, Ohio, on Tuesday, May 27, 1912, at twelve o'clock noon. Said meeting is called for the purpose of (1) taking into consideration and determining whether to adopt a certain agreement, dated as of May 8, 1912, authorized by the board of directors subject to the action of the stockholders of the company, providing for the sale and transfer to The B. F. Goodrich Co. (a corporation of the State of New York) of the entire property, assets, rights, business and good-will of The Diamond Rubber Co. (except only certain sums of money which, pursuant to said agreement, are to be or may be retained by this company) subject, however, to all of the liabilities and other obligations of The Diamond Rubber Co. existing at the time of such transfer all whereof are to be assumed by The B. F. Goodrich Co. and the payment by The B. F. Goodrich Co. to this company, in consideration of such transfer, of one hundred and fifty thousand (150,000) shares, of the aggregate par value of fifteen million dollars ($15,000,000) of its seven per cent. cumulative preferred stock, and three hundred thousand (300,000) shares, of the aggregate par value of thirty million dollars ($30,000,000) of its common stock; said agreement providing, also, that The B. F. Goodrich Co., at the time of such transfer and delivery of stock, shall be the owner of all of its present property and assets (except such as may be alienated in the usual course of business) and shall not have outstanding in excess of one hundred and fifty thousand (150,000) shares ($15,000,000 par value) of preferred stock and three hundred thousand (300,000) shares ($30,000,000 par value) of common stock, in addition to the stock to be delivered to this company; (2) taking into consideration and determining whether to adopt another certain agreement, likewise dated as of May 8, 1912, and authorized by the board of directors subject to the action of the stockholders of the company, providing for the purchase from this company by Goldman, Sachs & Co., Lehman Brothers and Kleinwort Sons & Co. (herein called the "Bankers"), of seventy-five thousand (75,000) shares of the preferred stock of The B. F. Goodrich Co. and thirty thousand (30,000) shares of the common stock of said company, if received by this company under said agreement with The B. F. Goodrich Co., for the sum of seven million five hundred thousand dollars ($7,500,000) in cash, and the amount of accrued dividends, at the rate of 7 per cent. per annum, upon such 75,000 shares of preferred stock, and, in case of the consummation of said purchase by the bankers, securing to F. A. Hardy an option to repurchase at par and accrued dividends, at the rate of 7 per cent, per annum, all or any part of twenty-five thousand (25,000) shares of said preferred stock and also a certain contingent interest in a portion of the profits, if any, realized by a syndicate to be organized by said Bankers; (3) taking into consideration and determining whether to approve and adopt certain notices, letters, memoranda and other papers supplemental to said above-mentioned agreements, relating to proceedings thereunder or with respect thereto and providing, among other things, that from and after May 15, 1912, said agreements shall be unconditional and absolute agreements, subject only to action thereon by the stockholders of said companies respectively and to the rights to terminate the same reserved to the parties thereto respectively; and (4), if said agreements above mentioned shall be adopted at said Stockholders' Meeting, taking any further action that may be necessary or appropriate to effect the intent and purposes of said agreements. Said agreement between this company and said Bankers provides, among other things, that none of the stock of The B. F. Goodrich Co., received by this company or by its stockholders, shall be sold, distributed or otherwise disposed of, except with the consent of the Bankers, so long as the disposition of a like portion of the existing stock of The B. F. Goodrich Co. is restrained by a similar agreement heretofore entered into between the same Bankers and the B. F. Goodrich Co. (of Ohio). The maximum period during which this limitation can be operative is six months from May 11, 1912.

A copy of the certificate of incorporation of The B. F. Goodrich Co. (of New York), which contains provisions defining the rights and priorities of the preferred stock of that company, and copies of all of said above-mentioned agreements and other papers may be examined by the stockholders at the office of this company at any appropriate time before or during the progress of the stockholders' meeting.

The stock transfer books of the company have been closed by order of the board of directors and will remain closed until after the adjournment of the stockholders' meeting hereby called when they will be reopened on a day to be fixed by the board of directors. If the above-mentioned agreements shall be adopted by the stockholders, the stock transfer books when reopened will remain open for a period to be fixed by the board of directors, and after the expiration of said period will again be closed, probably permanently. Stockholders of record will be notified of the action taken at the stockholders' meeting and of the date for the opening and (if the same are again to be closed) the date for the closing of said books. By order of the board of directors,

F. A. HARDY, *President.*

W. B. MILLER, *Secretary.*

May 16, 1912.

TO THE STOCKHOLDERS OF THE DIAMOND RUBBER CO.:

In explanation of the accompanying notice of a special meeting of the stockholders of The Diamond Rubber Co., to be held at the office of the company, in Akron, at 12 o'clock noon, on May 27, 1912 (to which your attention is earnestly directed), the members of the board of directors desire to communicate the following information to the stockholders of the company:

The notice of the stockholders' meeting refers particularly to two agreements, viz.: (1) an agreement between this company and The B. F. Goodrich Co. for the sale to the latter of the property and good-will of this company (except certain reserved moneys), in consideration of $15,000,000 par value, of the seven per cent. cumulative preferred stock and $30,000,000, par value, of the common stock of said company and (2) another agreement between this company and the bankers named in said notice (Goldman, Sachs & Co., Lehman Brothers and Kleinwort Sons & Co.) for the sale to the Bankers of 75,000 shares of the preferred stock and 30,000 shares of the common stock of The B. F. Goodrich Co., if acquired by this company under said first-mentioned agreement for $7,500,000 in cash and the amount of the dividends accrued upon said 75,000 shares of preferred stock. The complete performance of the two agreements mentioned should leave in the hands of this company for ultimate distribution to stockholders at least $8,000,000 of cash; $7,500,000, par value, of the seven per cent. cumulative preferred stock of The B. F. Goodrich Co. (of New York) and $27,000,000 par value of the common stock of the last-mentioned company. This preferred stock will be entitled to cumulative dividends at the rate of seven per cent. per annum from April 1, 1912, unless the transfer to the Goodrich Company is postponed beyond July 1, 1912, in which case the board of directors of this company will declare the usual dividend of three and one-half per cent. upon the existing stock of this company, payable as of July 1, 1912, and the preferred stock of the Goodrich company to be received by the stockholders of this company will be entitled to dividends only from the last-mentioned date. The preferred stock will be subject to call and redemption at 125 and accumulated dividends, and, in any case of liquidation, to priority in the distribution of the company's assets to the same extent. The certificate of incorporation of The B. F. Goodrich Co. contains various provisions designed to safeguard the interests of holders of preferred stock. It also provides in substance that until the holders of two-thirds in interest of each class of stock shall otherwise direct, said company shall pay such amount of corporate, franchise and property taxes in the State of Ohio as may be required by the laws of that State, in order to render the stock of the company exempt from taxes in Ohio.

Previously to the negotiation of the two above-mentioned agreements to which this company is a party, which are in substance parts of a single transaction, the bankers had purchased for $7,800,000 cash, 78,000 shares of the preferred stock and 30,000 shares of the common stock of The B. F. Goodrich Co., which are part of the already issued stock of that company, and the agreement between the bankers and The B. F. Goodrich Co. (of Ohio) by which that purchase was made provided against the sale or other disposition of any of the remaining shares of the outstanding stock of The Goodrich Co., without the consent of the bankers, during a certain period (which expires on November 11, 1912) or prior to an earlier date 90 days subsequent to the termination of a syndicate organized by the bankers to purchase from them a portion of said stock. In order to maintain the integrity of the agreement last referred to, the bankers insisted that a corresponding provision should be inserted in the agreement between them and this company. It is anticipated that the bankers will consent to the actual distribution of the stock of The B. F. Goodrich Co. to be received by this company well in advance of the expiration of the period covered by the agreement with them.

By said agreement with the bankers, F. A. Hardy, the president of this company, has secured, for the pro rata benefit of all holders of the present stock of this company desiring to join therein, the right to purchase from the bankers, referred to in the notice, at par and accrued dividends at the rate of seven per cent. per annum, all or any part of 25,000 shares of the preferred stock of The B. F. Goodrich Co. Upon adoption of said agreements by the stockholders of the company at their meeting to be held May 27, 1912, if the same be adopted, all of the stockholders will be notified of the fact and proper forms will be sent them to be used in subscribing for their respective shares of these 25,000 shares of said preferred stock. By the same agreement, Mr. Hardy also secures a certain, comparatively small, contingent interest in a portion of the profits of a syndicate to be organized by the bankers. Any benefit thus derived is to be turned over to, or devoted to the use of this company or otherwise for the advantage of the company or its stockholders, as the board of directors may determine.

Neither the proposed sale of the company's property and business nor the proposed resale to the bankers of a portion of the preferred stock of The B. F. Goodrich Co. involves any commission or compensation of any kind to any of the officers or directors of the company personally, and no officer or director of this Company has any interest in said transaction, other than the same interest which every other stockholder has in his proper proportion.

The adoption by the stockholders of the agreements mentioned in the notice should result in the distribution or payment to the holders of the present stock of this company of $80 per share in cash, $75 per share in the seven per cent cumulative preferred stock of The B. F. Goodrich Co., and $270 per share in the common stock of said company. It is expected that, almost immediately after the transfer of this company's property, such cash payment will be made and assignable, but non-negotiable certificates of interest (evidencing the stockholders' right, when the agreement with the bankers shall cease to restrain the same, to receive the above-mentioned preferred and common stock) will be delivered, upon surrender, by the stockholders, respectively, of the stock certificates evidencing their several holdings of stock in this company.

If the agreements be adopted and are carried out, the principal executive officers of this company will become officers of The B. F. Goodrich Co. and will be elected to its board of directors, upon which the stockholders of this company will also have such further representation as their holdings of stock may equitably entitle them to enjoy.

The legality of the transactions provided for in the agreement and of the plan outlined in this letter has been approved by counsel, and said agreements and plan are unanimously approved by the undersigned, who are all of the directors of the company.

F. A. HARDY, A. H. MARKS, W. B. MILLER, A. H. NOAH, R. C. LAKE, G. E. NORWOOD, O. C. BARBER.

PROPOSED OFFICERS OF THE NEW GOODRICH COMPANY.

The proposed officers of the new Goodrich company are as follows: F. A. Hardy, of Chicago, former president of The Diamond Rubber Co., will be chairman of the board of directors; F. H. Mason, now vice-president of the Goodrich company, will be vice-chairman of the board of directors; B. G. Work, president of the Goodrich company, will be president of the combined companies; A. H. Marks, vice-president and general manager of the Diamond company, will hold the same position with the new company; E. C. Shaw, general manager of the works of the Goodrich company, will be second vice-president and manager of the works; H. E. Raymond, secretary and sales manager of the present Goodrich company, will hold the same position with the new company; W. B. Miller, secretary of The Diamond Rubber Co., will be second vice-president and assistant sales manager; C. B. Raymond, secretary of the Goodrich company, will hold the same position with the new company. W. A. Means, treasurer of the Goodrich company will hold the same position with the new company.

This latter position was offered to A. H. Noah, of The Diamond Rubber Co., but he declined the offer and gave as his reason that he desired to retire from active work of the company, but was prevailed upon to serve in an advisory capacity for at least one year. These men, together with O. C. Barber and C. C. Goodrich, will form the board of directors of the new company. It is claimed that those who have held official positions with each company and who are not provided for in the new list of officers and directors, will be taken care of and given

positions of trust and responsibility in the new combination.

According to a statement made by B. G. Work, there are to be no radical changes in the management of the Goodrich company after the Diamond company is taken over. "At present, no change is contemplated in the selling organization. This applies to both the Diamond and Goodrich plants. We will still maintain the branches of both companies as in the past, but eventually they will be amalgamated in each city into one. The name 'Diamond' will continue as before, as a trade mark, and also that of 'Goodrich.' Both Goodrich and Diamond tires will be marketed as in the past. The Goodrich will not make any special change in reorganization, but its marketing force will be doubled. The office force of the Diamond company will be retained."

The stockholders, at their meeting on May 27, ratified the action of the directors.

GOODYEAR TIRE AND RUBBER COMPANY.

The stockholders of The Goodyear Tire and Rubber Co. will vote on May 28 to increase the company's capital stock from five million to ten million common, and from one million to five million preferred. C. W. Seiberling, vice-president of this company, states that the five million preferred will be issued at once. Instead of being redeemable at 105 as is the present preferred, the new stock will be redeemable at 120 at the company's option after January 1, 1915, the holders of the present one million preferred having agreed to exchange their stock, share for share, for new preferred. The balance of the new preferred, four million, will be offered to common stockholders at par. The new plan is wholly separate from the transaction completed some weeks ago, in which the common stockholders received 100 per cent. stock dividend and rights to take $340,000 treasury common stock at par.

THE RUBBER TRADE IN RHODE ISLAND.

By a Resident Correspondent.

IMPORTANT happenings have followed one another in rapid succession in the rubber trade in Rhode Island during the past month. The Revere Rubber Co. lost more than $500,000 worth of tires in a fire, the Phillips Insulated Wire Co. applied for permission to increase its capitalization by $500,000, and the reorganization of the Consumers' Rubber Co. and the reopening of its plant were finally effected.

* * *

The Revere Rubber Co., which is the Providence plant of the United States Tire Co., lost practically every tire that it had finished up to the time of the beginning of the blaze on May 7. Two firemen were killed during the conflagration.

The company is already rushing preparations for a new storehouse opposite its plant on Eagle street, Providence. Plans for a big brick building will be accepted soon. It will be connected with the manufacturing buildings by a bridge over the street, permission for which was granted at the last session of the State Legislature. It is understood that this building will be made as nearly fireproof as it is possible to have a structure of the kind, and that its capacity will be much larger than the old plant of the Monahan Vehicle Co., which, up to the time of the fire, was used for the storage of tires.

The plant has been running day and night for a long time, so it will be practically impossible to increase the output.

The new storehouse will be five stories 300 x 75 feet. In the meantime several wooden sheds are being erected on the Valley street side of the plant for storage purposes, and many other improvements are being made to various buildings.

* * *

An increase of $500,000 in the capitalization of the Phillips Insulated Wire Co. was followed almost immediately, early in the month, by the commencement of work on a new brick office building west of the plant on Freeman street, Pawtucket, Rhode Island. This structure will be one story and a basement, and of artistic design.

When the office building has been finished workmen will start on the destruction of a large wooden building fronting on Central avenue on the north side of the plant. With this structure out of the way, the company, which already owns the land, all of which has a frontage on the India Point Branch of the New York, New Haven & Hartford Railroad, will have several acres on which it will erect a large addition to its plant during the summer.

The removal of the offices from the main building of the plant and the lengthening of it to Central avenue will give the company several thousand feet of additional floor space for manufacturing purposes—something that has been needed for a long time as a result of increasing business.

* * *

The reorganization of the Consumers' Rubber Co., Bristol, was completed in the early part of May. A new Rhode Island company of the same name was organized to take over the property of the old, which went into the hands of a receiver in December of last year. The new concern is controlled by the Walpole Rubber Co., which intends to manufacture rubber shoes.

The officers are: President, F. J. Gleason; vice-president, Terrence McCarty; treasurer, A. T. Baldwin; secretary, P. W. Gardner. Mr. Gleason is vice-president of the Walpole Rubber Co.; A. T. Baldwin is its treasurer, and Mr. Gardner is its attorney. Terrence McCarty was head of the old Consumers' company and will be retained as manager of the new. His system of management is considered excellent, but the faults of his financial system will be removed by the application of the system in vogue at the Walpole plant.

The plan of reorganization was worked out by Percy W. Gardner, representing creditors whose claims totaled $300,000, and J. F. Dunbar, a well-known Boston rubber man. It was accepted by the receiver, Robert S. Emerson, and later ratified by the Superior Court.

Fully 90 per cent. of the creditors came in under the agreement, agreeing to take stock in the new concern in payment of their claims. Those who did not agree were allowed 17 cents on the dollar by the court, and the cash for this payment was provided by the Walpole Rubber Co.

The plant was closed on April 30 for stock-taking and was reopened on May 13, with about 300 hands employed. The inventory was complete and the machinery was started in good condition, with enough orders on hand to insure operations in full for an indefinite period.

* * *

The American Electrical Works, at Phillipsdale, Rhode Island, began to run overtime about May 1 until 8:30 in the evening. This was the first time in many months that business warranted such long shifts. The arrangement has been continued. The chief product of this concern is insulated wire.

* * *

A financial statement issued by the Woonsocket Rubber Co. early in May showed that the total assets on March 30 were $5,243,063 against $5,700,970 a year ago at that time. The detailed statement will be found in another column.

* * *

George F. Kelley, of Providence, son of Arthur L. Kelley, president of the Mechanical Fabric Co., was married at St. Bartholomew's Church, New York, Saturday, May 4. A reception was held in the ballroom of the Hotel Gotham following the ceremony. Mr. and Mrs. Kelley will reside in Providence.

* * *

Charles J. Davol, president and treasurer of the Davol Rubber Co., has just become the owner of a new 90-foot power cruiser type of yacht which will be one of the handsomest craft of the kind on Narragansett Bay. The design carries out his ideas. She is equipped with bulkheads and other improvements which are almost as complete as in an ocean liner.

* * *

Numerous alterations are being made to the hose room of the National India Rubber Co.'s plant, Bristol, for the purpose of transforming it into a foundry for the manufacture of copper wire. The room, which is 200 feet x 40 feet, will be ready for the new work in about a month.

The reconstruction consists of building foundation piers for

supports for the increased weight which the new machinery is expected to put upon the floors of the structure. It is expected that other buildings which have been empty since the removal of some departments to Cleveland will also be utilized for part of the wire making equipment.

THE RUBBER TRADE IN SAN FRANCISCO.

By a Resident Correspondent.

BUSINESS during the past month has been fairly good with all of the rubber merchants in San Francisco. Owing to the dry weather in the early part of the season, there was quite a demand for garden hose, which induced considerable activity in this branch of the business. Since then there has been plenty of rain to insure big crops and a prosperous year for the farmers, and this seems to have started a better business in all lines.

* * *

The San Francisco headquarters of the Seamless Rubber Co. will be moved to larger quarters at 216 Market street. E. Milburn, the manager, states that increasing business has made it imperative to make a change, and a location further down town is deemed to be better adaptable to the lines they have to sell. Mr. Milburn has a very full and complete stock of druggists' sundries, and reports that business has been steadily increasing during the past few months.

* * *

Austin Kanzee has opened attractive sales offices at 541 Golden Gate avenue. Here he will act as selling agent for the Seamless Rubber Co.'s tires and Kantleek inner tubes.

* * *

Clyde S. Thompson has succeeded James A. Braden as advertising manager of the Diamond Rubber Co., the latter resigning because of poor health.

* * *

Stanley W. Main and Ben. W. Copeland have formed a partnership for the purpose of carrying on the retail business formerly conducted by the W. D. Newerf Rubber Co., in this city. Their specialty will be the automobile tire business. In order to start in his new line of business, Mr. Main resigned his position with the Goodyear Tire & Rubber Co. He has been adjuster with this company since its factory branch was first started in this city.

* * *

Fred H. Bowerman, who was formerly connected with the Firestone Tire and Rubber Co., has joined the Goodyear Tire and Rubber Co., of California. He has taken a responsible position, and has his headquarters with the San Francisco branch.

* * *

Considerable interest is shown by all of the merchants here in the merger of The B. F. Goodrich Co. with the Diamond Rubber Co.; but it is not believed that it will make any change in the conduct of the business on this coast for some time to come. The merger is considered as a thoroughly natural move.

* * *

W. A. Daggett, manager of the Eureka Fire Hose Manufacturing Co., has returned from a three weeks' trip to the Northwestern territory. While away he selected three representatives for the company, who will be located in the larger cities of the Northwest, to look after the company's interests in that territory. He believes that there is a tendency towards improved business conditions all through the Pacific coast territory.

* * *

J. E. French, manager of the Pacific coast branch of the Pennsylvania Rubber Co., is now visiting the company's Los Angeles branch. This firm reports a good active automobile tire business.

* * *

W. J. Gorham, of the Gorham-Revere Rubber Co., has left for the Northwest to pay a visit to the company's branches in that territory. This firm reports an improved business in all lines, although, as before, the business in automobile tires is taking the lead.

* * *

The new auxiliary high pressure fire protection system is nearly completed in San Francisco. This consists of reservoirs containing vast amounts of water, and situated on the tops of the highest nearby hills. These are supplemented by big cisterns scattered about throughout the city. In case a big fire should break out now the fire department will not be helpless as it was in 1906, owing to the bursting of the regular water mains. The city will shortly be in the market for a large quantity of 3½-inch hose for the new high pressure system. They will also advertise for big bids on 1½-inch and 2¾-inch hose. Owing to the fact that the city is now permitting the manufacturers to bid under their own specifications, it is believed that there will be some lively bidding this time.

* * *

J. B. Lippincott, representing the interests of the Boston Woven Hose and Rubber Co. in Southern California, with headquarters in Los Angeles, and Herbert K. Selby, who represents the interests of this company in Oregon, Washington and Idaho, with headquarters in Portland, have both been the guests of Mr. Joseph V. Selby in San Francisco for a week past. Mr. Joseph V. Selby is the Pacific coast manager for the company, with headquarters in San Francisco.

THE RUBBER TRADE IN TRENTON.

By a Resident Correspondent.

One of the 23 huge vulcanizers in the plant of the Empire Rubber Manufacturing Co., Trenton, New Jersey, recently exploded from some cause that could not be ascertained. Though the vulcanizer was 22 feet in length, 6 feet in diameter, and weighed 14 tons, it was thrown a distance of 20 feet, while the door, weighing between 3 and 4 tons, was thrown a distance of 40 feet in the opposite direction. The machine was tested a short time previous and was supposed to stand 135 pounds of steam. At the time of the explosion the gauge showed 110 pounds.

The boiler inspectors and insurance adjusters who made an investigation declared the accident was unavoidable. The damage amounted to about $3,000, fully covered by insurance. The explosion did not interfere with the operation of the plant or the filling of orders in any way.

* * *

General C. Edward Murray, treasurer of the Empire Rubber Manufacturing Co. and Empire Tire Co., who is a candidate for district delegate from the Fourth Congressional district of New Jersey, has been making a most vigorous campaign in the interests of President Taft. The fight has been the most bitter in this section of any primary battle in years.

* * *

Increasing demand for the product of the textile mills of Morris & Co., at Groveville, has necessitated the enlargement of the company's force of operatives, and day and night shifts are now employed in the plant. Two hundred operatives are engaged in manufacturing cotton duck, etc. In the past sixteen months the sales have increased 200 per cent.

* * *

The Thermoid Rubber Co. is filling many orders for tires, and shipments are being made to Europe and Australia in addition to the trade centers in the United States and Canada.

* * *

The United and Globe Rubber Mfg. Co. reports a large business in air brake hose couplings. This concern is now supplying a large number of the railroads of the South with couplings.

The United States Rubber Co.'s Annual Report.

THE twentieth annual report of the United States Rubber Co. was dated and distributed on May 6, two weeks ahead of the annual meeting, which occurred on May 21, at New Brunswick, New Jersey. The reports of the president and treasurer are given below.

REPORT OF PRESIDENT COLT.

TO THE STOCKHOLDERS OF THE UNITED STATES RUBBER CO.:—

Notwithstanding certain unsettled trade conditions, the result of the operations of the company and of its subsidiary companies during the past year, both in the volume of sales and profits, has been satisfactory.

The report of the treasurer appended hereto gives the Consolidated General Balance Sheet and the Consolidated Income Statement of the United States Rubber Co., for the fiscal year ending March 31, 1912.

This Consolidated Statement does not include the operations of the Rubber Goods Manufacturing Co., the Canadian Consolidated Rubber Co., Limited, or the General Rubber Co., there being stock of each of said companies not owned by the United States Rubber Co. This statement therefore includes only the dividends derived from the United States Rubber Co.'s stock holdings in those companies. The share of the undivided earnings of those companies for the year, applicable to the stock interests of this company, is computed to be $1,335,024.39.

COLONEL SAMUEL P. COLT.
[President United States Rubber Co.]

VOLUME OF BUSINESS.

The volume of business of the United States Rubber Co. proper for the year was $36,775,947.58 as against $40,888,724.25 the previous year. This volume of business, however, is confined largely to rubber footwear. The tire and mechanical business of the company appears chiefly in the operations of the Rubber Goods Manufacturing Co., whose sales the past year amounted to $34,587,269.15. The sales of the Canadian company for the year were $5,418,681.49. The selling prices in each case were lower than in the previous year.

PROFITS.

The net profits for the year ending March 31, 1912, were $5,376,306.86 as against $4,349,825.73 the previous year, the greater part of this increase coming from the larger dividends received from our holdings of stock in the Rubber Goods company. Adding to these profits the share of the undivided profits of the Rubber Goods, Canadian and General Rubber companies appertaining to this company's stock interest therein amounting to $1,335,024.39, the total gain for the year would be $6,711,331.25, as against $5,661,991.84 last year.

As heretofore, all interest paid by the company upon both its funded debt and its floating debt is deducted before the net profit is shown.

CRUDE RUBBER—INVESTMENTS IN FAR EAST.

During the past year the course of the crude rubber market has been steadier than it was in the two previous years, the extreme prices for fine Pará being $1.43 on April 1, 1911, and 94 cents in June, 1911. The price April 1, 1912, was $1.18.

The development of our plantations in the Far East has progressed favorably. Last year we purchased about 80,000 acres in the Island of Sumatra. Much of it had been planted in tobacco. In place thereof we proceeded to plant rubber trees. Having the advantage of a large tract of cleared land and a good working organization, we have now over 20,000 acres planted with more than 2,500,000 rubber trees, being already the largest rubber plantation in the world. We have over 10,000 coolies at work, and the enterprise is proceeding most satisfactorily. We have good reason to believe that the complete success of this undertaking is assured and that with the increasing development of that plantation we will have secured a very large portion of our future requirements of crude rubber at a minimum cost.

EXPANSION OF BUSINESS.

During the past few years the business of the company has expanded out of proportion to the increase in its capitalization and the outlook is for still greater business expansion in the future. This is true especially of the automobile and other tire industry, of which the United States Rubber Co. in conjunction with the United States Tire Co. is the world's largest single manufacturer and distributor of tires, notwithstanding its proportion of the entire tire business of the country is only about 25 per cent. To meet this continuous growth of business, to keep pace with the times and to be always at the highest point of development with respect to securing our supplies of crude rubber as well with respect to manufacturing and distribution, your president hopes that the directors in the near future will consider the adoption of some comprehensive plan whereby additional funds may be available as required. The rubber manufacturing business is an expanding business and the United States Rubber Co. has to meet aggressive competition in all its lines of goods. Other large manufacturers have recently increased their capitalization materially and the increasing competition renders it all the more important that our company shall provide for further capital in order that it may continue to maintain its position in the rubber trade.

As an illustration of the close competition that we are

obliged to meet, it may be mentioned that for some years past the net profits of the company have been less than 10 per cent. upon its net sales. The policy of the company has been to strive to do a large volume of business at a reasonably low percentage of profit.

REVERE-CANADIAN SYNDICATE.

December 31, 1911, ended the period of twenty-five months during which, as reported to the stockholders in 1910, the Revere-Canadian Syndicate (of which your president was member and manager), was entitled to the earnings of the Revere Rubber Co. up to $700,000, and to one-half the earnings in excess of $700,000. These earnings were found to amount in the aggregate to $762,578.21, of which under the terms of the agreement $731,289.10, has been paid to the syndicate. The earnings of the Revere company in the year 1911 would have been larger but for the interruption in its manufacturing and its general business, due to the transfer of machinery and its manufacturing of tires to a second factory, then in the course of enlargement. Now that this factory is finished and the Revere company has in operation two factories, each specializing in its work, it is expected that the net earnings will be increased. Such earnings from January 1, 1912, will go in their entirety to augment the earnings of the United States Rubber Co.

PROFIT SHARING PLAN.

In 1904 this company adopted a plan of specially interesting employes in the success of the company through a stock option, which within its limits worked successfully. But for some time past your directors have been elaborating a new and more comprehensive plan for the further development of the interest, loyalty and efficiency of the many officials and salaried men in its service and in that of its subsidiary companies. The directors concluded to accomplish this by giving those thus in its service a special motive for acquiring and retaining for years an interest in the company's stock, so as to make them substantially partners in the enterprise. For this purpose the company acquired in the market a number of shares of its common stock at $45 per share, which it is now offering to them at the same figure, although the market price at present is somewhat higher. The subscriptions are to be paid for in instalments of not less than $4 per share per month. The offer is limited to those receiving $1,300 per annum and upwards, on the idea that they will best be able to meet the required payments without taking an undue financial burden upon themselves. In order to make the privilege of subscribing at $45 per share still more attractive, and also to make it the more probable that the subscribers will retain their stock and so for years continue their interest in the company's welfare, the company proposes to give them a cash payment of $3 per share for each of the coming five years, provided the subscribers retain their stock during that period and obtain a certificate at the end of each year that their services have been satisfactory to the company.

Furthermore in order to make the payments on the subscriptions the less burdensome to the subscribers, the company will distribute a certain profit sharing fund among the subscribers. At any time before full payment any subscriber may cancel his subscription. In such case all he has paid, together with interest at five per centum per annum, will be refunded. In the case of the death of a subscriber during the five years, his family will receive the same benefit he would have received under these plans had he lived. Any forfeitures caused by unsatisfactory service or by termination of service or by cancellation will enure to the benefit of the other subscribers.

If the plan works out successfully, it is hoped that in each succeeding year a similar offer will be made—the price of such future stock subscriptions, however, to be determined partly by the market price of the stock and other conditions prevailing at the time. It is believed that enthusiastic and highly interested work and prolongation of service will make substantially for the welfare of all concerned.

CONDITION OF PROPERTIES.

The various operating mills and equipment of the United States Rubber Co. and its subsidiary companies—have been maintained in the highest degree of efficiency, additions being constructed where required, the most modern machinery installed and all kept in the best of repair.

NEW OFFICE BUILDING.

The new twenty story office building of the United States Rubber Co., on the corner of Broadway and Fifty-eighth street, New York, is nearing completion and will be ready for occupancy at an early day. A portion has already been rented to tenants. The first floor and two basements of the building will be used exclusively by the United States Tire Co. for its growing business, and the seven upper floors will be occupied for the general offices of the United States Rubber Co. and its subsidiaries.

RESUMPTION OF DIVIDENDS ON COMMON STOCK.

Last October your directors became satisfied that they were warranted in then resuming dividends upon the common stock of the company and a one per cent. dividend thereon for the quarter year was accordingly declared. Such dividends have since been continued quarterly.

CONCLUSION.

It is a source of great gratification to the management of the company that all of its securities should now be on a dividend paying basis.

Advances have been made in the efficiency of our organization during the year and, although there is much yet to be accomplished and notwithstanding that as in the past there will doubtless arise in the future obstacles to be overcome, we feel that the general condition of our company was never more satisfactory nor its future outlook more encouraging than it is today.

Considering the increasing variety of uses to which rubber is being applied and that it seems practically certain that entire success will attend the cultivation of the rubber tree in the vast tropical countries of the east, where cheap labor is abundant, and where the cost of production is only about one-third the cost in Brazil, we look forward to a constantly increasing volume of business and steadily growing prosperity for the United States Rubber Co. Respectfully submitted.

SAMUEL P. COLT, *President.*

TREASURER'S REPORT.

UNITED STATES RUBBER CO. AND SUBSIDIARY COMPANIES.

[Not including Assets or Liabilities of Rubber Goods Mfg. Co. and certain other Companies owned in part by U. S. R. Co.]

CONSOLIDATED GENERAL BALANCE SHEET, MARCH 31, 1912.

ASSETS.

Property and plants (including shares of R. G. M. Co., and Canadian Consolidated Rubber Co., Ltd.)		$87,453,928.25
Inventories, manufactured goods and materials	$21,754,653.86	
Cash	4,848,466.12	
Bills and loans receivable	1,133,412.53	
Accounts receivable	13,464,959.27	
Stock owned in General Rubber Co.	3,333,300.00	
Securities, including stock and bonds of U. S. R. Co. held by subsidiary companies	4,189,087.57	
Miscellaneous assets	344,644.63	49,068,523.98
Total assets		$136,522,452.23

LIABILITIES.

Capital stock, first preferred	40,000,000.00	
Capital stock, second preferred	10,000,000.00	
Capital stock, common	25,000,000.00	75,000,000.00
Ten-year 6 per cent. collateral trust sinking fund gold bonds*	$18,500,000.00	
Less bonds in treasury	500,000.00	$18,000,000.00
Bonds of a subsidiary company		970,000.00
Loans and notes payable	9,667,063.45	
Merchandise accounts payable	2,049,623.77	
Accrued interest, taxes, etc	489,036.02	
Due General Rubber Co	7,394,919.31	19,600,642.55
Reserve for dividends		1,200,000.00
Reserve for redemption of bonds and depreciation of plants		570,583.90
Fixed surpluses (subsidiary companies)		12,005,495.89
Surplus		9,175,729.89
Total liabilities		$136,522,452.23

The contingent liabilities for certain guarantees, which are offset by corresponding contingent assets, are not included.

*$1,500,000.00 of the original issue of $20,000,000.00 bonds have been cancelled under Sinking Fund provision.

The Reserve for Contingencies, amounting to $500,000.00, shown in the Consolidated Balance Sheet of March 31, 1911, was used for reduction in value of Manufactured Goods for which purpose it was set up.

CONSOLIDATED INCOME STATEMENT FOR YEAR ENDING MARCH 31, 1912.

Net sales, boots and shoes and miscellaneous		$36,775,947.58
Cost of goods sold		29,925,336.56
Manufacturing profits		$6,850,611.02
Freight, taxes, insurance, general and selling expenses		2,315,225.11
Operating profits		$4,535,385.91
Other income (net), including dividends received on stock of certain other companies owned by U. S. R. Co		2,691,780.75
Total income		$7,227,166.66
Less:		
Interest on bonds and borrowed money	$1,369,437.20	
Interest allowed customers for Prepayments	421,329.33	1,790,766.53
Net income		$5,436,400.13
Additions to surplus		75,318.84
		$5,511,718.97
Deductions for bad debts, etc		135,412.11
Net profits		$5,376,306.86
Dividends		4,550,000.00
Surplus for period		$826,306.86
Surplus April 1, 1911		8,349,423.03
Surplus March 31, 1912		$9,175,729.89

Respectfully submitted,

JAMES B. FORD, *Treasurer.*

The certificate of audit of the company's accounts, signed by Haskens & Sells, certified accountants, accompanies the foregoing statements.

BUSINESS OF THE COMPANY.

The following table showing the amount of net profits of the United States Rubber Co. and the amounts disbursed in dividends since the organization of the company, has been compiled from the printed reports of the successive treasurers of the corporation:

YEAR ENDING—	Net Profits.	Dividends.
March 31, 1893	[Not Published.]	
March 31, 1894		
March 31, 1895	$2,716,370.00	$2,056,190.00
March 31, 1896	2,339,790.60	2,056,190.00
March 31, 1897	1,999,611.34	1,552,040.00
March 31, 1898	2,070,750.41	1,164,030.00
March 31, 1899	3,226,513.46	1,882,040.00
March 31, 1900	3,007,887.54	2,828,680.00
March 31, 1901	62,605.57	705,765.00
March 31, 1902	deficit	none
March 31, 1903	1,594,908.16	none
March 31, 1904	1,575,641.29	none
March 31, 1905	3,761,922.63	1,882,040.00
March 31, 1906	3,881,270.23	2,846,092.00
March 31, 1907	4,590,382.72	3,485,956.00
March 31, 1908	3,553,556.14	3,495,448.00
March 31, 1909	4,507,655.39	3,498,940.00
March 31, 1910	5,535,163.15	3,574,205.00
March 31, 1911	4,349,825.73	3,800,000.00
March 31, 1912	5,376,306.86	4,550,000.00

THE ANNUAL ELECTION.

One new director was added to the board of directors, namely, Theodore N. Vail, making twenty-one directors, as follows:

Walter S. Ballou,	Henry L. Hotchkiss,
E. C. Benedict,	Arthur L. Kelley,
Anthony N. Brady,	Lester Leland,
Samuel P. Colt,	D. Lorne McGibbon,
Harry E. Converse,	Edward R. Rice,
James Deshler,	Homer E. Sawyer,
James B. Ford,	Frederick M. Shepard
J. Howard Ford,	William H. Truesdale,
Frank S. Hastings,	Theodore N. Vail,
Francis L. Hine,	John D. Vermeule,

Elisha S. Williams.

At a meeting of the board of directors of the United States Rubber Company for organization and other business, held May 23, the following officers and executive committee were duly elected for the ensuing year:

OFFICERS.

Samuel P. Colt, *president.*
James B. Ford, *vice-president and treasurer.*
Lester Leland, *second vice-president.*
Samuel Norris, *secretary.*
W. G. Parsons, *assistant treasurer.*
John D. Carberry, *assistant secretary.*

EXECUTIVE COMMITTEE.

Samuel P. Colt, James B. Ford, Lester Leland, Walter S. Ballou, Anthony N. Brady, Elisha S. Williams, Homer E. Sawyer.

PRESIDENT COLT'S ADDRESS AT THE ANNUAL MEETING.

At the annual meeting of the stockholders of the United States Rubber Co., held in New Brunswick, New Jersey, May 21, 1912, President Samuel P. Colt delivered the following address.

TO THE STOCKHOLDERS OF THE UNITED STATES RUBBER CO.:

Since the issuance of the president's annual report, my suggestion, that the rapid expansion of the business of the company would soon require further financial provision, has been confirmed by the unexpectedly sudden development of large and combined competition which imposes upon your officers a duty of vigilant and active effort to maintain and extend your business. To this end, considerably increased financial provision is desirable without delay, and I take this earliest opportunity of asking your consideration and advice as to the following plan which the board of directors recommends:

FIRST: That the total authorized capital stock of the company, now fully issued to the extent of $75,000,000 be increased to the total amount of $120,000,000, to be divided into $40,000,000 common stock and $80,000,000 preferred stock.

SECOND: That out of this additional $15,000,000 common stock and $30,000,000 preferred stock, provision be made substantially as follows:

(1) A common stock dividend of $5,000,000 or 20 per cent. upon the present outstanding common stock; a dividend which will be warranted by the company's surplus.

(2) An offer ratably to all stockholders of $10,000,000 first preferred stock at par and accrued dividend.

(3) An offer to the holders of the second preferred stock of an opportunity for a virtual exchange of their present stock on the basis of 100 shares of second preferred stock for 75 shares of first preferred stock.

This plan having been fully carried out, there would be issued and outstanding $57,500,000 preferred stock and $30,000,000 common stock, leaving unissued $22,500,000 preferred stock and $10,000,000 common stock. And the company thereafter will have but two instead of three kinds of stock.

Of this preferred stock the $2,500,000 gained through the retirement of the second preferred stock would be available (without exceeding the two to one requirement of the New Jersey Law) for offer if deemed advisable for the minority holdings of the Rubber Goods Manufacturing Co. stock.

The $20,000,000 preferred stock and the $10,000,000 common stock then remaining would be available for the future uses of the company.

The result of these operations would be to obtain $10,000,000 additional cash for the United States Rubber Co. in a way giving ratably to the stockholders the benefit of the premium upon the $10,000,000 preferred stock.

Before deciding finally as to this plan the board of directors desires to know the disposition of the stockholders, and accordingly recommends that this meeting be adjourned to reconvene at the company's office in New Brunswick, New Jersey, on Friday, May 31, at 12 m., for an informal vote upon these propositions. The proxy committee announces that unless and except as otherwise instructed it will vote in favor of this plan all present proxies not withdrawn before that meeting.

In case of approval by a sufficient amount of stock, the board of directors expects then to proceed to take the action, and to call the special stockholders' meeting or meetings necessary to carry the proposed plan into effect; and then or thereafter to submit a further plan or plans for the refunding of all of the existing obligations of the company and of its subsidiaries, and adequate provision for future needs of this important and steadily extending organization in a chief industry of the world.

By direction of the board of directors a copy of this address is being mailed to every stockholder.

SAMUEL P. COLT, *President*.

A SUPPLEMENTARY ANNOUNCEMENT.

Following the reading of his address Col. Colt made the following announcement:

"Among the things that I advocate is the immediate construction by the United States Rubber Co. of the largest and best tire plant in the world in order to meet the growing demand for our tires.

"I feel that we are warranted in this undertaking from my belief that the tire industry is still in its infancy, and that although the principle of the 'survival of the fittest' may be found to apply, that the splendid organization of the United States Tire Co. will be able to market a much larger volume of tires than the United States Rubber Co. with its present capacity (although now operating four tire factories) is able to manufacture."

A LIGHTNING CALCULATOR FOR DRY COSTS.

THERE are certainly a great many active brains at large; one proof of which is to be found in the fact that every few days somebody invents some simple little device that does in a minute what able-bodied men have been accustomed to devote hours to. Here is an ingenious little contrivance for getting the dry cost of rubber at a glance. It consists simply of a celluloid disk about 3½ inches in diameter, with another celluloid disk 2½ inches in diameter, the two being fastened together at their centers so that the small disk turns freely on the other disk. To find the dry cost of rubber it is necessary simply to turn the upper disk on the lower so that the percentage of shrinkage comes opposite the

market price of crude rubber; then the arrow marked "dry cost" points to the actual dry cost of the rubber.

For instance, on the day when the accompanying cut was made Upriver fine was quoted at $1.11. Calling the shrinkage 18 per cent. and placing 18 per cent. on the inner disc opposite $1.11 on the outer disc, we get a dry cost of $1.35. It is a tremendous saving of time to people who have these calculations to make. The illustration shows one of these dry cost calculators issued by the Acushnet Process Co., New Bedford, Mass. Anyone who has use for this device can apply to that company and secure one.

THE GOODRICH COMPANY NOT TO BUILD ON LONG ISLAND.

Some of the New York papers have recently had an item to the effect that The B. F. Goodrich Co., of Akron, Ohio, had purchased a large plot in Long Island City, adjacent to the tracks of the Pennsylvania-Long Island Railroad, with the expectation of erecting a factory. In reply to an inquiry, C. B. Raymond, secretary of The B. F. Goodrich Co., makes this statement:

"We have heard this same rumor ourselves and are utterly unable to learn how it ever originated, because we have done nothing of the kind, neither have we had any negotiations nor idea looking toward any such move on our part. You are, therefore, authorized to take this as our official denial of any such intention."

Replete with information for rubber manufacturers: Mr. Pearson's "Crude Rubber and Compounding Ingredients."

The India-Rubber Trade in Great Britain.

By Our Regular Correspondent.

IN a recent editorial in THE INDIA RUBBER WORLD reference was made to the manufacture of balloon and aeroplane fabric as a new department in the rubber industry, which has recently been taken up by various firms. The subject has had a good deal of attention drawn to it lately by reason of a legal case in the King's Bench Division, London, in which the North British Rubber Co., Limited, of Edinburgh, sought to recover £253, balance of account from E. T. Willows, the well-known aviator, for rubber cloth supplied in 1910, for the envelope of his dirigible balloon. The case was heard before Justice Scrutton on April 24, 25 and 26, judgment in favor of the North British Co. being given the following week.

BALLOON FABRIC.

In the space available I can only deal briefly with the salient points of the trial. It was admitted by both sides that after five months the fabric of the envelope was, in the judge's words, "past praying for," as regarded its hydrogen-holding capacity, the point at issue being, who was to blame for this condition of affairs? Was it due to faulty fabric or to rough usage? In this matter expert evidence was given by Auguste Gaudron, balloon manufacturer, and Mervyn O'Gorman, superintendent of the government airship factory at Aldershot, for Mr. Willows; while E. Short, balloon manufacturer and aeronaut; Percival Spencer, balloon manufacturer and aeronaunt, and H. L. Terry, consulting chemist, Manchester, were for the plaintiffs.

The excessive leakage of hydrogen after five months was attributed by Mr. O'Gorman to a rapid resinification of the rubber, which appeared to have been of perfectly good quality when supplied. He was unable to give any reason for this deterioration, though such occurrences were by no means unknown. With reasonable care the life of such fabric in regular use should be about two years. The plaintiffs agreed with this, though they said that Mr. Willows' balloon had received such treatment as to preclude its lasting that period of time. Mr. Spencer thought that six months' regular use was about the length of life for the fabric supplied in this case.

Mr. Short said that he had made a balloon out of North British Co. fabric, and had used it in Chili with quite satisfactory results, though it had been inflated with coal gas and not hydrogen. Mr. Terry testified to the high grade of the rubber proofing used on both the inner and outer coating of the fabric. This analysis was not questioned in cross-examination, though various matters relating to possible defects in the manufacture were put to the witness. The judge said that there was no proof of any guarantee having been broken, as he was convinced that the fabric as supplied was up to the catalogue figures with regard to tensile strength, moisture-absorption, and permeability to hydrogen. He was also of opinion that there was no rubber, as at present made, that did not gradually become more permeable to hydrogen, owing to some change which did not appear to be understood, but which was described as "increasing porosity." The British government specification had a clause: "The increase in leakage after exposure to all weather conditions for 50 days must not exceed 50 per cent. which showed that these goods could not be considered permanent."

It was for the defendant to satisfy the court that the failure of the fabric was due to the warranties in the catalogue being broken. The result of the mass of the evidence given on both sides had been, his Lordship said, to leave him completely in the dark on most of the points discussed, his only consolation being that in the darkness he had plenty of company. This sort of thing, I may add, has no doubt often occurred before when technical evidence is called on both sides. No one could read, his Lordship said, the report of the Advisory Committee on Aeronautics without appreciating that explorers were by experiment gradually ascertaining the qualities of the materials they were dealing with. An attempt was made by the witnesses to show that the ordinary life of the rubber material used for dirigible balloons was two years, so that a five months life showed inefficiency, but he thought that the witnesses were merely guessing in the dark. There was not, he thought, any sufficient experience of the life of dirigibles, or of their ordinary work, and its effects on their fabric, to enable any opinion to be expressed on which legal results could be founded.

Mr. Willows, I may say, put in a counter claim for somewhere about £600 for expenditure on hydrogen and loss of fees due to the failure of the balloon. Judgment was given against him on the counter claim as well as in the main claim. It is understood that the defendant will take the case to the Court of Appeal, but this has not been decided at the time of writing.

I may perhaps add a word or two in concluding this report. More than one reference was made to the balloon cloth made by the Continental Rubber Co., though in the newspaper reports reference was generally made to *a* Continental Co. An unfortunate error occurs in the report of the judgment given by our London contemporary. The statement that the *colored* fabrics were found to lose all their hydrogen-containing efficiency in 50 days weathering should be the *uncolored* fabrics were found, etc. This is an important point and a good deal was said by various witnesses about the different yellow coloring matters now in use generally on such fabrics to protect the rubber from the injurious action of the actinic light rays. As to what is the best yellow dye or pigment for the purpose there does not seem yet to be any general agreement, though there is a pronounced tendency to discard chromate of lead for some of the aniline dyes. A point of interest about the rubber was raised by Mr. O'Gorman, who said that it had not yet been proved that Pará rubber was the best for retaining hydrogen; it might be that some other brand of rubber was superior in this respect.

ELASTIC THREAD.

Independent of any claims which may or may not have been settled in trade circles, by reason of the premature decay of elastic thread in woven goods, there is a good deal of grumbling among retail purchasers of elastic webbing as to the quality, compared with ten or twenty years ago. When complaint is made at the shops of the reduced lasting power, the answer is given that the purchaser must remember the lower price now paid—for instance, in the case of hat ribbon, 2d. per yard instead of 6d. as is old times. When the shopman is told that price is no consideration, that the quality is what is wanted, he replies that better qualities are not now stocked. I don't say that this condition of affairs is universal, but it is quite common from inquiries I have been making, and it seems to me that it is a very unfortunate result of trade competition, combined with parsimony on the part of some purchasers. The cotton fabric appears to be much the same as in the past; but the rubber is of finer count and is possibly woven too much on the stretch. I don't think there is anything wrong with the rubber; the economy in the weaving factories seems to be the adverse factor. In some cases a merchant buys a quantity of elastic thread from the rubber manufacturer, and gets quotations from the weaving factories for making it up into fabric. He probably places the business at the lowest quotation, without going into details of cost, which are beyond his ken; and in this way there is room for future trouble

to arise. Of course, it may be argued that if you get three times as much so-called elastic for your money as you did in past times the purchaser thereby suffers no damage, and the shopkeeper may well say that he is not going to stock a high-priced perishable article for which there is only a limited demand; but all the same it seems a pity for so many classes of rubber goods to be losing their old reputations for quality by reason of the stress of present day business conditions.

AN ADDRESS ON RUBBER.

At the April meeting of the Manchester section of the Society of Chemical Industry Mr. Sydney Frankenburg, of the well-known firm of rubber manufacturers, read a paper entitled "The History of the Commercial Development of Rubber." The subject matter was limited to familiar ground. This, however, did not detract from its interest to the audience, the great bulk of whom were professedly ignorant of the subject. A number of lantern slides showing rubber plantation scenes were shown, together with numerous slides of rubber machinery, bearing the impress of David Bridge & Co. In referring to plantation Pará, Mr. Frankenburg emphasized its inferiority to Brazilian Pará for the best purposes, and said that a spreading test was the best to show their relative values. It is conceivable that if plantation interests had been represented at the meeting this remark would not have passed unchallenged. Mr. Frankenburg, of course, is by no means alone in his opinion, and in spite of the publication by rubber chemists of elaborate papers showing that wild Pará rubber is not superior to the plantation product, manufacturers still hold their own opinion that it is. The chairman said that what Mr. Frankenburg had told them was very interesting, and he hoped that on a future occasion he would supplement his paper by a more technical one on the manufacture. But this, of course, is quite another matter.

CHAS. MACINTOSH & CO., LIMITED.

I regret to have to record the death of Mr. Arthur Birley, senior partner of the firm, at Bournemouth, on April 26, from an attack of pneumonia. The deceased had been living at the southern watering place since his retirement some years ago from active participation in the business. He was father of Mr. P. A. Birley, and uncle of Col. R. K. Birley and H. A. and J. H. Birley.

New laboratories are now being erected by the company, the present accommodation being insufficient for the growth of work in this department.

On April 11 a handsome testimonial, subscribed for by the clerks and workpeople under his control, was presented to Mr. A. E. Walker on the occasion of his silver wedding. It must be about thirty years since Mr. Walker entered the firm's service.

ENGLAND GOES IN FOR AEROPLANES.

THE British government has taken up the aeroplane subject quite seriously. It has just authorized the purchase of 60 aeroplanes; and 40 more will be added as soon as enough members of the army and navy have been properly trained to manage them. The government is also giving a great deal of attention to the hydro-aeroplane. Many experiments with these amphibious machines have been tried by naval experts, and the probability is, that the British government will order a number of them.

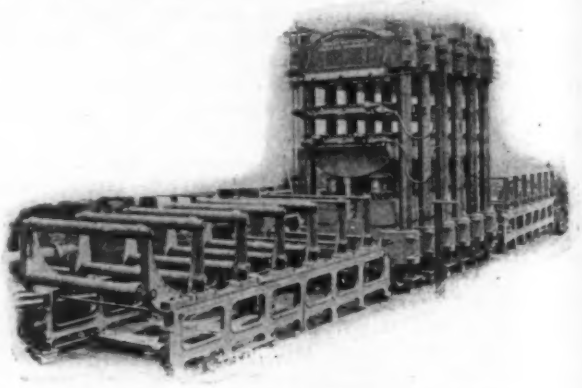
The important place that flying machines are taking in the military equipment of different nations may be seen from the fact that for the current year France will spend over $6,000,000, Germany, $3,500,000, and Great Britain over $1,500,000 for airships and aeroplanes.

ENGLISH BICYCLE TIRE INDUSTRY.

Reports from England state that the season of 1911 was unsatisfactory from the rider's point of view, rather than from that of the manufacturer. The hard roads affected the tires, so that most bicyclists have been obliged to replace their tires this year. This circumstance is said to have brought about a large demand for immediate delivery, which is expected to exercise a favorable influence upon the English bicycle tire industry.

A GIGANTIC VULCANIZING PRESS.

EVERY manufacturer of rubber is familiar with the rubber machinery made by David Bridge & Co., at their great plant at Castleton, near Manchester, England. They manufacture a wide variety of rubber machinery, not only for use in manufacturing plants, but on rubber plantations. The accompanying photograph shows one of their very large vulcanizing



presses, recently installed by an English manufacturer. This is not the largest press ever made by David Bridge & Co., but it is quite large enough to be interesting. Its total weight is considerably over 100 tons. It is built up on the duplicate ram system, with a total of 12 rams. The bases are independent of the cylinders, which are made of cast steel, so as to withstand exceedingly high pressure. This press has two daylights and three platens, which make it possible to have a duplex operation. These platens are so constructed as to prevent water lodging in any part of them. In this way a uniform heat for perfect vulcanization over the whole surface is obtained. The total pressure on the platens is nearly 3,000 tons. The heads and bases are separate in order to allow for expansion. At each end of the press there is a special hydraulic plate charging and discharging apparatus, which is furnished with two plates on each side fitted on runners so that the operation of vulcanization is not interfered with.

Machinery is to be installed at the Manchester, England, School of Technology for practical instruction and research work on india-rubber, and the Manchester Corporation has accepted the tender of F. Shaw & Co., Ltd. for the supply of experimental plant for the equipment of a laboratory where research upon broad lines will be carried out. During the last two years courses of lectures have been given in the school upon the chemistry of rubber, and these are now to be supplemented by practical work.

GERMAN SYNTHETIC RUBBER PROSPECTS.

While patenting its various discoveries, the "Farbenfabriken" of Elberfeld, formerly F. Bayer & Co., has (according to its statements at the annual meeting) apparently been making slow progress in the production of synthetic rubber. One obstacle seems to be the prospect of advanced prices in Germany of the necessary raw materials.

It is reported in the German press that the company may decide to put up a plant for synthetic rubber in a foreign country. Diplomatic reserve seems to characterize its policy, and the big German concern is evidently the "dark horse" in the race.

CENTRAL UNION OF GERMAN RUBBER GOODS FACTORIES.

WHILE the annual report of the above body presented to the general meeting of May 10 included a good deal of routine matter, various points of general interest were likewise treated

The Union is composed of 47 factories, the size of which is shown by the following figures:

Employing 100 and less hands	.....	7
100-300 "	.....	19
300-500 "	.....	9
500-1,000 "	.....	7
Over 1,000 "	.....	5
		47

Prominence is given to the subject of exhibitions. Two confidential reports were made to the Union on the London Rubber Exhibition of 1911. The interest taken in the approaching New York Rubber Exposition is shown by the reproduction of its preliminary announcements, which had been received through the Permanent Exhibition Commission for German Industry. This fact signifies the official approval of the New York Exposition by the German government. As the German Exhibition Commission exercises close discrimination in such matters, its approval is more than a mere formality, and indicates official confidence in the exposition.

Among the objects of the Union is the conservation of the interests of German manufacturers as to customs duties. On these lines, representations were made to the German government as to the duty on wringer rolls, now paying the equivalent of 3 per cent. *ad valorem*, but of which it is sought to alter the classification to a higher scale.

With reference to the subject of the cost of *Hevea* rubber in the Straits Settlements, reference is made to the following opinion of Secretary Dernburg, of the Colonial Economical Committee:

"I consider fully grounded the statement that at a price of 2 shillings a pound, Indian plantations would be making a good profit; if not today, then in a short time, when the larger instead of the smaller part of the planted area will be available for tapping."

Such are the principal features of the annual report, which give a general idea of the working of the Union during the last business year.

GERMAN OFFICIAL VIEW OF THE RUBBER MARKET.

The official report of the German Colonial Rubber Bureau for the first quarter of 1912, referring to the recent temporary advance in prices, attributes same to the momentary shortness in receipts, particularly of various second-grade qualities, to the use of which manufacturers have now become accustomed. This has been particularly the case during the last few months in Guayule rubber, these conditions being considered likely to continue for the present.

On the other hand, the opinion is expressed that the Mexican troubles will finally be settled, and that the accumulated rubber will then lead to increased exports. Another factor in the situation is the prospect of considerably increased European imports of plantation rubber. As there is not more than a normal increase of consumption to be looked for, a considerable augmentation of the visible supply is thought likely to occur by the end of the year, which would be bound to exercise a depressing effect upon prices.

The fact is commented upon that the Brazilian government seems to have finally abandoned the idea of rubber valorization; this resolution being characterized as in the interest of the country itself.

GUMMI-KAMM CO. CHANGES ITS NAME.

The report lately presented by the board to the shareholders of the "Hannoversche Gummi-Kamm Compagnie" contained the following interesting announcement:

"Our concern, founded in April, 1862, can now look back upon an existence of fifty years, and we intend to commemorate this jubilee with appropriate festivities.

"Since its foundation the scope of our manufactures has been extended to a number of articles other than rubber combs, and we therefore consider a change should be made in our designation, which no longer corresponds with existing conditions. In the name selected of the 'Excelsior Rubber Works of Hanover' we think we have found a title which embraces all the articles made by us. While we part with regret from the old designation, we consider the change to be necessary and hope it will be approved by the general meeting."

Among other features of the report were the announcement of a dividend of 25 per cent. and the statement that the business of the company has increased 50 per cent. within the last two years. This development has necessitated, besides other additions, the erection of a new factory, which is expected to be in operation about the middle of the current year.

THE PROPOSED NEW GERMAN PATENT LAW.

After years of preparation, the proposed revision of the German Patent Law is approaching completion. Specially prominent among the changes it would make is the right of employes to participation in their inventions. By the present law, an invention by an employe in the line of his work belongs exclusively to the owner of the plant. Under the proposed new law the interests of the employe are to be considered, he being guaranteed a pecuniary share in his invention.

GERMAN DUTY ON AMERICAN RUBBER ROLLS.

IN a communication to the German government quoted in the annual report of the Union of German Rubber Goods Factories, attention is called to the fact that in 1910, 506 tons of "machinery for washing and chemical cleaning" were imported into Germany, of which 421 tons came from the United States. The duty at the equivalent of 66 cents per 100 pounds only represented 3 per cent. Under the provisions of the tariff another paragraph would equally apply to these articles, with a duty of $6.60 per 100 pounds. As the official interpretation of the tariff has hitherto placed rubber rolls at the lower rate, it is sought by the German manufacturers to obtain a reconsideration of the question. It is stated that the proportion of rubber in the rolls is 75 per cent. of their value or even more.

USE OF RUBBER RESINS IN THE PAPER INDUSTRY.

A communication to the "Papierfabrikant," a leading German organ of the paper industry, states that although the waste resins resulting from the deresination of Pontiniak are completely unsaponifiable, they can be brought with rosin soap to an emulsion, which can be employed in place of the free rosin now used for sizing paper. A uniform compound is found by melting 50 parts Pontiniak waste resin, 5 parts of Guayule waste resin and 50 parts of colophony (rosin), a hot solution of 10 parts caustic potash and 50 parts of water, being gradually stirred underneath. Such emulsions remain in that condition even when much diluted, and can be completely precipitated by alum.

Waste rubber resins can also be brought to an emulsion with other substances. For instance, a compound can be made of two parts glue, one part starch, four parts jelutong waste resin and ten parts of water. The pasty mass thus obtained is diluted with water, as may be required. These emulsions containing unsaponifiable resins are said to possess marked light-resising qualities.

THE RUBBER INDUSTRY IN JAPAN.

By Our Regular Correspondent.

JAPANESE RUBBER INCORPORATIONS.

THE last twelve months have witnessed the incorporation of various new Japanese rubber companies, supplementing the important industry already existing in that branch, the principal features of which have been from time to time recorded.

In May, 1911, the Kashima Rubber Works Company was established at Takinogawa, Tokyo, by M. Kashima. It has been employed in the manufacture of rubber thread, as well as other goods, but is understood to be about to cease manufacturing operations.

The Sanyo Rubber Works Company was established at Ushigome, Tokyo, in June, 1911, by K. Inaba. Its product will be chiefly composed of soles for sandals, its motive force being furnished by a 25 h. p. boiler.

After the destruction by fire of the plant of the Daishin Sha Rubber Co. in December, 1911, it changed its name to the Sugie Rubber Works, building a new factory at Kameido, Tokyo, to which location it removed from Nitpori, Tokyo. The product of the company chiefly includes medical supplies. The motive power is supplied by a 60 h. p. condensing engine, and by a 70 h. p. boiler of Lanarkshire type.

The proprietor is E. Sugie, after whom the works are now called, the experts being Mr. Iguchi, Bachelor of Engineering (of the Tokyo Imperial University), and K. Negishi. The property of the company is about one acre in extent, of which the portion built upon represents about two-thirds.

In January, 1912, the Sun Rubber Company, Limited, was established at Honjo, Tokyo, with a capital of $6,250, by Messrs. S. Suzuki, K. Suzuki, T. Kato, Y. Kashiwagi and S. Shizo. The manufactures are jinrikisha tires, molded goods and insulating materials, the expert being Y. Kashiwagi, who had been in Boston from 1904 to 1911, and who has had special experience in tires. Motive power is supplied by one 25 h. p. engine.

THE NIPPON RUBBER COMPANY, LIMITED.

One of the important concerns destroyed by the fire of April, 1911, which laid in ashes the northwestern part of Tokyo, was the Nippon Gomu Co., Limited (Nippon Rubber Co., Limited). This company had been formed in December, 1900, through the amalgamation of the previous limited partnership with the Yashida Rubber Works.

In order to prevent the interruption of the manufacturing operations, two temporary factories were started in June, 1911. In August, 1911, the company began the erection of a new factory at Tamahime, Asakusa, which is approaching completion and will employ 130 hands, the motive power being supplied by five engines, with an aggregate of 100 h. p. Hose and bicycle tires will form the chief articles of manufacture. In hose and tires the company's products have been recognized as being equal to those of European manufacture. There are five directors and two inspectors. Nissaburo Okuma is managing director, while the technical expert is Seikichi Yoshida. The area covered by the company's plant is 1¼ acres. It produces 2,000 pairs of tires monthly.

AZUMA RUBBER WORKS.

This private partnership at Honjo, Tokyo, is chiefly engaged in the manufacture of specialties, its production for 1910 including 216,000 rubber balls and 255,000 pair of rubber soles. The motive power is furnished by one 25 h. p. engine. Mechanical goods are likewise made.

RUBBER SOLE FACTORIES.

Rubber soles for straw sandals, etc., are made on a more or less important scale by the firms already named, and, in addition, by Chuo Rubber Works, Tokyo; Nomoto Works, Tokyo; Funabashi Rubber Works, Tokyo; Tokai (or Kwanto) Rubber Manufacturing Co., Tokyo; Koyanagi (or Sigamo) Rubber Works, Tokyo, and others.

Rubber heels are made as a specialty by Ukawa Rubber Works, Tokyo, as well as by the Azuma Rubber Works, already referred to.

These details, in conjunction with those recently given as to various large companies, illustrate the variety which marks the growing Japanese rubber industry.

A FRENCH VIEW OF REGENERATED RUBBER.

IN the opinion of Messrs A. Murat and F. Leconte, in their recent communication to the "Revue Internationale":

"Regenerated rubber (if there really existed a product to which this name could be given), would be that which, extracted from rubber which has already passed through all the phases of manufacturing, and has been thrown aside, can be renovated and employed anew in manufacture; displaying qualities practically equivalent to those of natural rubber as it comes from the tree."

While industry affords numerous examples of this renovation in the case of metals, glass, paper, celluloid, etc., it is remarked that a complete and true regeneration of rubber does not exist; all efforts for that end having failed.

This is attributed to the fact that the vulcanization which necessarily precedes the industrial use of rubber produces changes in its molecular condition, which may be compared to the tempering of steel. It is added that this process has the result of making the rubber lose its plasticity, so that the vulcanized rubber cannot be directly used anew, but requires to be transformed. It being insoluble in all the solvents of natural rubber, and no solvent being known for it, a complete result has not been obtained from the various experiments made for the extraction of the sulphur held in combination.

Quoting the words of the writers of the article: "There are in reality, therefore, only 'pseudo-regenerates.' In practice, after having pulverized the debris, the only course taken is to introduce a high degree of heat, in order to restore to the rubber a certain plasticity; submitting the waste to the action of hydro-chloric and sulphuric acids, which destroy any textile substances present. This relative plasticity (always attained to the detriment of the elasticity and tenacity) allows the product thus prepared to be rolled, and subjected to the same operations as natural rubber. But it will not suffice by itself; to give commercial results, it must be mixed with natural rubber, and still only ordinary and sometimes medium qualities are obtained. It is these agglomerated waste products, which are currently designated as 'regenerated rubber.'"

Regarding the future, the opinion is expressed that while, as long as rubber keeps at a high price, the industry will doubtless continue to use waste rubber on a large scale, it is evident that when it can procure natural rubber on favorable conditions, it will cease to have the same interest in the adulteration of its products.

Such is of course only one side of the case, which is reproduced with the object of reporting the *pros* and *cons* of this important question.

RUSSIAN SYNTHETIC RUBBER.

The report of the necessary financial arrangements having been made for developing the recent invention of Professor Ostromylensky is confirmed. It seems to have been acquired by the "Bogatyr" Rubber Goods Manufacturing Co., of Moscow, this company being said to contemplate increasing its capital and manufacturing capacity. It proposes to erect new premises for the production of synthetic rubber on a large scale. The project will be submitted to the shareholders at the approaching general meeting of the company.

RUBBER PLANTATION FIRE RISKS.

WHILE urban fire risks are an ever present hazard, it must not be supposed that the forest is exempt from their influence. The very magnitude of the scene increases the danger through fire to property, if not to life, while the peril is further increased by the inflammable nature of the material exposed to this risk.

More particularly does this danger affect plantations, where skilled labor has supplemented the work of nature and has increased the value of natural products by systematic cultivation. Two causes have been considered responsible for plantation fires, according to whether they originate at home or away from home. In the former category are included fires arising from the burning of a new clearing situated perilously near a planted-out area. With regard to this particular feature of hazard, the fire may arise from the absence of means for the protection of such parts of the estates as may be within their reach. It should be borne in mind that the burning referred to is only possible during a drought, which equally affects the surrounding open country. Whether these precautions should include clean weeding is a matter of opinion, but some experts have held that a moderate carpet of weeds, carefully watched and free from too much long coarse grass, is the cause of but little danger from fire. The point of real importance is to have a natural barrier or protective belt of primeval forest, from 25 to 50 feet in width, clear of secondary growth, between the plantation and adjoining cultivation.

A TROPICAL FOREST FIRE IN MEXICO. ONE THAT DESTROYED MANY RUBBER PLANTATIONS.

One constant source of hazard is the proximity of native settlements, without the intervention of such a protective barrier. This risk is largely due to the careless manner in which the natives use fire in cooking and to the highly inflammable construction of their dwellings. Another feature of danger consists in the long grass, growing among other vegetation, and liable to be fired by a red-hot cinder from a locomotive, or by the sun's rays; with the risk of the unlimited destruction of rubber trees.

In view of these conditions, an important point for consideration is the question of wide planting, on the same principle as the greater security offered by the detached arrangement of houses in urban communities. Another interesting question is that of the high resistance said to be offered to fire by the Pará rubber trees (*Hevea Branhensis*), in view of its absorption of moisture being on a scale of importance. The recuperative properties of this tree are of special interest to underwriters, it having been asserted that a fully matured *Hevea* would have to be cleaved to its heart before its life was endangered. Even more tenacious of life is the *Castilloa* tree, which often sends up shoots after being burned almost to the ground.

On general economic principles, the insurance of rubber trees approaching the productive stage, is a matter which claims the earnest attention of planters. While the danger in question is essentially a tropical one, it likewise affects rubber planters in all countries. Rubber trees are the planters' stock in trade, and as such call for the protection of insurance in the same way as the property of the merchant or manufacturer.

NOTES FROM BRITISH GUIANA.

By Our Regular Correspondent.

THE DROUGHT—WELCOME SHOWERS.

THE drought may be said to continue, but there is hope. April has been wetter than any month this year, and on a recent Sunday we had a typical rainy season day. It poured in tropical torrents for hours, and the rainfall gauge at the Georgetown Waterworks recorded a precipitation of 4.02 inches, which is a great deal more than for any previous months this year. The next day, however, dawned bright enough and the Sunday storms, although fairly general, appear to have been in the nature of a spasmodic effort on the part of the clerk of the weather. The general conditions being slightly more favorable some companies are preparing to despatch balata expeditions immediately and thus anticipate the rains. The Amsterdam Balata Co. is the foremost in this respect. Whether the additional expenditure incurred in getting these expeditions to the grants will be worth while is an anxious question.

THE RUBBER EXHIBITION—COLONY NOT TO BE REPRESENTED.

The colony is not to be represented at the rubber exhibition to be held in New York in September, after all. A meeting of the Permanent Exhibitions Committee has lately been held to discuss the matter, and the following official communication has been issued by the secretary, F. A. Stockdale, the Assistant Director of Agriculture. "It had been hoped that it would have been possible for this colony to send a representative exhibit of rubber, balata and other products to this exhibition, which is arranged to be held in New York from September 23 to October 3 next. The Permanent Exhibitions Committee had obtained several promises of exhibits, but at a recent meeting they were compelled to decide, owing to the severe drought, that it would not be possible to get together a collection of exhibits that would be creditable to the colony. Particulars in regard to open competitions have been asked for by the Permanent Exhibitions Committee in case any samples of rubber from this colony can be entered in these competitions, and it is hoped that arrangements can be made whereby literature relating to this colony and its industries may be distributed at the Exhibition."

The decision is probably premature. The Exhibition is a good

five months ahead, and the drought cannot be prolonged much longer. It should be possible to get together an exhibit, and considering the value the New York market is likely to be to us it seems a thousand pities to despair so soon. "The Daily Chronicle" roundly denounces the act editorially, and says under the caption: "A Colossal Blunder!" "The decision of the Permanent Exhibition Committee to rescind its resolution, passed some months back, to send exhibits to the Rubber Exhibition to be held in New York towards the end of the year, will create profound disappointment, and we hope that it will arouse the indignation that is required. It is said that owing to the severe drought it will not be possible to get together a collection of exhibits that would be creditable to the colony. The drought has brought to light many evidences of the supineness of the powers-that-be, but this surely sets the seal upon an amazing series of blunders. We are not at all impressed by the excuse thus ingeniously made.

"When we are informed, for instance, that rubber at Bartica has scarcely been affected by the drought, and when we recollect that the Exhibition does not open until September 23, and that long before that time it should be quite possible to procure the most excellent samples of rubber and balata, we shall not awaken surprise by manifesting a robust scepticism. It seems that the evil genius which sent the Agricultural Conference to Trinidad is again in the ascendant. We do not ask the reason, for we are aware we shall not receive enlightenment; we are content in condemning in unmeasured terms an act which is in keeping with the 'lazybones' policy that is retarding the colony's progress. The money spent on the London Exhibition was for the most part well spent on account of the education in this class of work which it supplied Mr. Stockdale. That is to be thrown away, in spite of the fact that Mr. Stockdale made a point in his report upon the Exhibition of the number of enquiries coming from America. Participation in the New York Exhibition would be about the most useful thing we could do just now; that is why we are not going to do it, we suppose."

BALATA IN BOLIVAR—INTERESTING PARTICULARS.

A Mr. Grossman, a German, who went to Bolivar, Venezuela, twenty-seven years ago and settled down there, has come to Georgetown to spend a short holiday. Interviewed by the "Daily Argosy" concerning the balata and rubber industries there, he said that the drought has affected them quite as badly as here. "The balata industry," he said, "is carried on in Bolivar much the same way as in British Guiana. The men get advances before they leave for the concessions. The advances are liberal, as the men have to travel for considerable distances, and require money for the support of their dependents until they are collecting balata, when the dependents can go to the offices of employers and cash orders. It is mostly block balata that is obtained. It does not fetch such a good price as the sheet balata obtained in British Guiana and Surinam, but it is got in large quantities and the profits are satisfactory enough in a good season.

"The law prohibits laborers from cutting down bullet-trees so that the industry may be preserved for as long a time as possible. The men are so far away, however, that it is impossible to control their actions. Should it be ascertained, however, that trees have been cut down, then the employer of the men responsible, besides suffering other penalties, is compelled to plant five trees for every one destroyed. Cases of absconding do occur. They are not very frequent, however. The men, for the most part, realize that it is in their own interest to get to the grants and collect as much balata as possible. Besides, the government deals very severely with absconders. The rubber industry is much older than the balata industry. It was in full swing when I went to Bolivar, whereas it was not till 1888 or so that any attempt was made to get balata. The latter industry is good for many a year yet, as there are big tracks of bullet-trees that have not been touched."

THE BALATA COMMITTEE RESUMES ITS WORK.

A meeting of the Balata Committee is to be held today, when the evidence of the Commissioner of Lands and Mines will be taken. The meeting is to be in private. The committee was appointed, it will be recollected, to devise means by which the labor difficulty might be dealt with and it was to report promptly. Unfortunately the president, Mr. J. J. Nunan, solicitor general, who is also president of the Royal Agricultural and Commercial Society, was sent as one of the latter body's delegates to the Agricultural Conference in Trinidad, and subsequently he was called to England on important business and obtained leave of absence. Now that he has returned the committee is resuming its business, and doubtless its report will be presented at the earliest possible moment consonant with the careful consideration of a difficult and delicate problem.

WEST INDIAN RECIPROCITY IN CANADA—EFFECT UPON RUBBER AND BALATA.

We are informed that the visit of a number of delegates from the West Indies to the Dominion of Canada to discuss with the government the possibility of entering into a reciprocal trading arrangement has had a successful termination; but it has not been stated what articles have been selected for preferential treatment. The agreement is said to be based, however, on the report of the Royal Committee, which was appointed to inquire into the matter. That commissioner recommended that both balata and raw rubber should enjoy the benefits of preferential treatment when admitted to the Canadian market. At present both articles are on the Canadian free list; so it is difficult to guess whether they are affected. In 1909-10 we sent 4,533 pounds of balata to Canada, valued at $1,450. That is all we have sent for the last five years; we sent none last year. Canada has never taken any of our rubber. The treaty, which is mainly to assist the sugar interests, will probably not affect either rubber or balata.

THE DROUGHT IN DUTCH GUIANA.

A graphic illustration of the rainfall conditions in Dutch Guiana, is afforded by a comparison of the reports on the subject in three successive issues of the "Weekly Echo" of Paramaribo, the bright and newsy organ of the English-speaking community in Dutch Guiana.

> April 27.—"It is now three solid weeks since the last shower of rain fell, and the weather is just as dry now as if it had never rained. . . . Official records of balata received in this city from January 1 to April 27 show no more than 1¾ tons."
>
> May 4.—"The rainy season has set in, for during the week we have had prolonged showers. . . . It is reported from the interior that rains are falling regularly and that the rivers are rising."
>
> May 11.—"We are now right into the rainy season and during the week heavy downpours of rain fell all over the colony."

As the season will have commenced late, the opinion is expressed that bleeding need not end in August, as is usually the case.

BURMA AT THE NEW YORK EXPOSITION.

THE Lower Burma Rubber Planters Association has decided to have an exhibit at the Rubber Exposition to be held in New York next September. The expenses have been provided for—partly by the local government, and partly by private contributions. The suggestion has been made—and it certainly is to be hoped that it will be carried out—that the exhibition should be typically Burmese with teakwood posts and canopy, and a Pagoda hung with rubber. This would be an interesting and picturesque feature.

Some Notes on Rubber Planting.

DR. HUBER ON THE BRAZILIAN SITUATION.

PARTICULARS received of the views of Dr. Jacques Huber, as expressed by him at Colombo, on his way to Malaya and the Dutch East Indies, show that he anticipates that in a few years, at the present rate of increase, the production of the plantations of the East will far exceed that of the Amazon valley, which is more or less stationary.

His opinion is, however, that even at present the cost of rubber production throughout the Amazon region, is in a general way less than three shillings (72 cents) per pound. At a selling price of three shillings, there would of course be for some districts little profit under the actual conditions of labor, freight and taxation; but with improvement of these conditions (in which direction the government has already taken steps) this price would, he considers, even permit a certain extension of the rubber industry on the Amazon.

Dr. Huber further expressed the view that it would be impossible to eradicate what had been for fifty years the principal industry of Brazil, on which the people depend. In fact, as he said: "Even with the lowest prices which plantation rubber could afford, there will always be an output of rubber from the Amazon valley, which cannot be neglected in the estimations of future rubber supply."

FORWARD SALES OF RUBBER.

AT the annual meeting of the Anglo-Malay Rubber Co., Limited, the chairman expressed the opinion that the publication of forward sales should be at the discretion of the board. In answer to the view of a shareholder that when rubber was low, forward sales tended to keep the big manufacturers out of the Mincing Lane market, Mr. Lampard said: "It is extremely advisable, in my judgment, at all events, even at a sacrifice of 1*d.* or 2*d.* per pound, to make forward contracts with manufacturers, the reason being that it is absolutely an essential point of a manufacturer's business to be able to cover his commitments forward. If he does not do it with plantation rubber he is going to do it with hard Pará—(Hear, hear,)—and it should be the aim and object of everyone associated with the cultivated rubber industry to see that the produce is distributed as freely and as easily as possible through the manufacturers' hands, and that is at the back of our policy." (Applause.)

LONDON ASIATIC RUBBER & PRODUCE COMPANY, LIMITED.

THE fourth annual general meeting of the above company was recently held in London. From the accounts submitted it would seem that the cost of production f. o. b. Port Swettenham was 1*s.* 4.91*d.* in 1911 against 1*s.* 4*d.* in 1910. Adding English sale and other expenses the total cost was 2*s.* 0.46 *d.* per pound, while the average gross price realized was 4*s.* 11.49*d.* per pound.

The yield was 352,688 pounds, against 180,477 in 1910, while the estimate for 1912 is 600,000 pounds. New modern machinery has been installed at the recently erected "Diamond Jubilee" factory.

ANGLO-MALAY RUBBER CO., LIMITED.

ACCORDING to the report submitted at the recent annual meeting of this company, the output for 1911 was 780,972 pounds, against an estimate of 750,000 pounds. This quantity was obtained from about 2,150 acres in bearing, the number of trees tapped being 260,328. Under these circumstances the averages obtained were about 3 pounds per tree and 360 pounds of rubber per acre.

The cost of production and sale, everything included, was 1*s.* 8½*d.* per pound, while the average net price realized was 4*s.* 10¼*d.*

For 1912, the estimated product is 900,000 pounds, of which 192,434 pounds have been harvested during the first quarter of the year. Forward contracts for 1912 have been made for 144 tons at an average of 4*s.* 6.41*d.* per pound.

In commenting upon the report, Mr. Arthur Lampard alluded to the fact that the increased product for 1911 had so far counteracted the effect of the average drop as compared with 1910 of 1*s.* 3*d.* per pound in price realized, that the profits for 1911 were only £32,000 short of those for 1910. The results of various past years were thus summarized by Mr. Lampard:

Year.	Product.	Profits.	Dividend.
1906	.....	£19,599	18 per cent.
1907	224,778 lbs.	27,000	20 " "
1908	350,688 "	50,000	30 " "
1909	517,550 "	135,000	80 " "
1910	673,132 "	171,000	100 " "
1911	780,972 "	139,000	70 " "

The authorized capital of the company is £150,000.

The profits made in six years amount thus to nearly four times the capital invested, while the total dividends represent 318 per cent.

VALLAMBROSA RUBBER CO., LIMITED.

The yields for the last three business years ending March 31, have been: 1909-10, 371,318 pounds; 1910-11, 411,476 pounds; 1911-12, 434,950 pounds. The yield for 1911-12 is slightly below the estimate.

SCOTTISH MALAY RUBBER CO., LIMITED.

The yield for the first four months of 1912 has proved nearly double that of the corresponding period of 1911; the respective figures being 37,446 pounds, against 19,248 pounds.

SIALANG RUBBER ESTATES, LIMITED.

For the three months ending April 30, 1912, the yield of rubber is reported as 26,463 pounds. One fifth of this quantity has been sold at the average equivalent of about $1.20.

ELECTRIC COAGULATION.

REPLYING to a question the "Gummi-Zeitung" states that trials have been made of the use of the electric current for the extraction of crude rubber from latex, suitable apparatus for that purpose having been constructed. Yet up to the present such processes have not been generally adopted, as the current is usually not available at the points of extraction or preparation.

An English patent of October 10, 1908 (No. 21,441) was granted to Thomas Cockrill, of Colombo, Ceylon, according to which the continuous flow of latex is filtered and gradually distributed over the whole width of an endless band. By the action of the electric current, the crude rubber is deposited in a granular mass upon the band, which is put in motion and passes through rollers, which bring it to a continuous strip. The latex serum flows from the band into a receiver, while the rubber strip is mechanically loosened and brushed. It is then treated with warm water, runs through metal heated rollers and is finally cut up.

Information of a detailed character seems to be lacking as to the practical success of this method, which requires electrical apparatus of a more or less extensive character. The claim has, however, been made that by its adoption pure rubber with smooth surface can be obtained from a neutral or an alkaline latex. It is remarked that this use of the electric current would simultaneously extract and purify the crude rubber.

THE REPORTED STOPPAGE OF ACRE RUBBER SHIPMENTS.

Interest was aroused by a statement which appeared on May 21 in a daily journal, to the effect that a dispatch from Rio de Janeiro said: "It is reported from Manáos that the Acre rebels have stopped the shipping of rubber." Inquiry failed to obtain confirmation of the report. One importer qualified it as a move of some speculative interest, with the object of boosting prices.

Obituary Record.

FRANCIS DANE BALDERSTON.

FRANK D. BALDERSTON died suddenly on the afternoon of May 11, at his home at Charlesgate, Boston, Massachusetts. He had been at home for three or four weeks troubled with inflammation of a vein in the leg, diagnosed by the physician as phlebitis. No apprehension, however, had been felt by his family or his physician, and the fatal termination of the disorder came most unexpectedly to all.

The funeral services were held on May 14, at the Chapel in Forest Hill Cemetery, the Episcopal service being read

FRANK D. BALDERSTON.

by the Rev. Alexander Mann, of Trinity Church. There was a large attendance of his business and social friends, including not only all the members of the Boston office of the United States Rubber Co., but representatives of that company from various other cities.

Mr. Balderston was born in Baltimore, Maryland, February 16, 1863, and moved with his parents to Boston in 1877. After graduating from the English high school of that city he entered the employ of Balderston & Daggett, of which firm his father was the principal member.

Frank Balderston's connection with the National India Rubber Co. was, aside from his conspicuous fitness for the position, in the nature of an inheritance. As far back as 1857 his father, John C. Balderston, acted as distributor of the products of the Providence Rubber Co., which later became the National Rubber Co. Twenty years later he moved to Boston and formed the co-partnership of Clapp & Balderston. Later the firm changed to Balderston & Daggett, and acted as the selling agency for the National Rubber Co., of which Mr. Balderston was a director. When in 1887 Colonel Colt secured control of this company, changing its name to the National India Rubber Co., Mr. Balderston became vice-president and the firm of Balderston & Daggett continued to act as selling agents for the reorganized company, Mr. Balderston devoting his entire energy to the National products. On his retirement from business his son Frank was made manager of sales for the tennis shoe department of the National India Rubber Co., and was very successful in this important line.

Frank Balderston was in many respects one of the most lovable characters that the rubber trade has known. He was always a gentleman, quiet in his tastes, fond of out-of-door sports, such as golf—in which he excelled—and with a rare faculty for making and keeping friends.

As assistant secretary and later as secretary of the Rubber Club of America he was brought into close touch with men in all lines of the trade and was universally liked and respected. Mr. Balderston was married to Miss Clara E. Banchor, of Boston, in 1895, who survives him.

RESOLUTIONS BY THE RUBBER CLUB OF AMERICA.

WHEREAS, Death has removed from our midst our beloved fellow member, Mr. Frank D. Balderston, it is

Resolved, That the Rubber Club of America has lost one of its most loved, useful and loyal members.

Quiet, friendly, conscientious—one who did well whatever he undertook—a cultured, sincere, helpful gentleman, his sudden passing is sincerely mourned.

Resolved, That the Rubber Club of America in particular, and the rubber trade in general, have suffered an irreparable loss.

Resolved, That we extend to his family our sympathy for them in this great bereavement, and that these resolutions be engrossed upon the records of the club.

HENRY C. PEARSON,
ELSTON E. WADBROOK,
GEORGE P. WHITMORE,
Committee on Resolutions.

IGNACE PLAMONDON.

Ignace Plamondon, for over a quarter of a century general superintendent of the Canadian Rubber Co. of Montreal, Limited, died on April 23, in his seventy-fifth year.

Ignace Plamondon came to Canada from New Hampshire when 14 years of age. He secured employment in the rubber mills of

IGNACE PLAMONDON.

the Canadian Rubber Co. of Montreal, Limited, over forty-five years ago. After working in the mills for some years, as a reward of his ingenuity and skill, he was promoted to the position of general superintendent, which position he filled with great advantage to the company for over twenty-five years.

Mr. Plamondon was recognized, for many years, as one of the foremost rubber experts in Canada, and was frequently consulted by the Faculty of McGill University, and also by many American authorities on the chemistry of rubber manufacturing. He retired from active duties ten years ago and since then had received a pension granted him by the company, in view of his long and faithful services. Of a quiet, unassuming and jovial disposition, Mr. Plamondon made many warm friends. One of his sons, Joseph E. Plamondon, is city salesman for the Canadian Consolidated Rubber Co., Limited, of Montreal.

SEABURY A. FORD.

Seabury A. Ford, who had been identified with Adams & Ford, Cleveland, Ohio, for over 50 years, serving as president of the corporation for many years, died on May 12, in the eightieth year of his age. He had not only been a prominent figure in the rubber footwear world for many years, but was well known in the social life of his city; being one of the charter members of the Union Club of Cleveland, and a member of the Chamber of Commerce. His funeral took place at his home in Cleveland on May 14.

EDWARD A. STRANG.

In the paragraph above, the death is mentioned of S. C. Ford, president of The Adams & Ford Co., Cleveland, Ohio. By a most remarkable coincidence, Edward A. Strang, vice-president of that corporation, died on May 15—three days after the death of Mr. Ford. Mr. Strang's death occurred most suddenly, and was caused by heart disease. He had been identified with Adams & Ford for a number of years, and was widely and favorably known to the rubber footwear trade, both by reason of his business ability, and his attractive personality. Mr. Strang was largely instrumental in the successful exploitation of the "Ever-Stick" rubber, the patent rights of which were purchased about five years ago by The Adams & Ford Co.

LOUIS H. AYME.

News comes of the death in Lisbon, Portugal, on May 16, of Consul General Louis H. Ayme, from locomotor ataxia.

Mr. Ayme was a native of New York, but spent many years in Chicago, where he was engaged in newspaper and scientific work. He served as press editor at the World's Columbian Exhibition in Chicago in 1893, and also acted at one time as special ethnologist for the Smithsonian Institute. During the last 12 years or more of his life he had been connected with the U. S. Consular service. He was consul at Pará three years, from 1903 to 1906, and while in that position made a careful study of rubber matters on the Amazon. THE INDIA RUBBER WORLD of August, 1905, contained his report to the United States government on "A New Source of Amazon Rubber." He was promoted from this position to the consulship in Lisbon in 1906.

LUDWIG EDLER VON REITHOFFER.

The death is announced on April 19 at Vienna, of Herr Ludwig Edler von Reithoffer, in his 92d year. His name is connected in the closest manner with the history of the Austrian rubber manufacturing industry, of which he has been regarded as the practical founder; having effected in 1872 the fusion of the firms then existing, of Menier, Harburg, and of J. N. Reithoffer, Vienna, under the style of the "United Rubber Goods Factories, Harburg-Vienna, formerly J. N. Reithoffer." The company thus formed was hence the direct successor of Johann Nepomuk Reithoffer, who had established the firm bearing his name.

Far beyond the limits of Austria the deceased was known as an enterprising manufacturer and as the head of the Austrian rubber industry. It was reserved for him to witness its development, from its early days to its present flourishing position.

His work met with the highest official recognition, various honors being conferred upon him by the Emperor of Austria. In him the poor lose a generous benefactor, while his death is mourned by a large circle of business and personal friends.

JOSEPH FYNNEY.

Among the victims of the ill-fated "Titanic" was Joseph Fynney, principal member of the firm of Joseph Fynney & Co., Liverpool, England, crude rubber merchants. Though Mr. Fynney was a comparatively young man—being only in his thirty-sixth year—he had an extensive knowledge of the rubber trade and was himself widely known in rubber circles, not only in England, but on the continent and in America. His business career was one of marked success. He did not, however, permit his commercial interests entirely to monopolize his time and attention; he took the deepest interest in the Young Men's Club, connected with St. James' Church at Toxteth (a suburb of Liverpool), and devoted much time to the interests of the club and to the welfare of the young men and boys who belonged to it. His death—particularly occurring in this tragic way—has caused great sorrow among his business associates and friends. His body was among the few recovered.

ALEXANDER WARDROP.

Much regret has been expressed at the death in his 53d year of Alexander Wardrop, of Kandy, Ceylon, secretary of the Ceylon Planters' Association; the cause being heart failure, due to aneurism of the aorta. He started his planting career in 1880, and in 1907 succeeded Edgar Turner as secretary of the Ceylon Planters' Association. As a polished and vigorous speaker he rendered valuable services to the planting interest in dealing with the government, and with individuals, and his loss will be keenly felt.

SAMUEL EMERSON.

Samuel Emerson, who was for a long time connected with the Apsley Rubber Co., and has since been engaged in various enterprises, principally textile manufacture, died at his home, Lunenburg, Massachusetts, May 2.

Mr. Emerson was born at Pascoag, Rhode Island, and was in his sixty-third year. His first business venture was as owner of a store at Millbury, Massachusetts, after which he became associated with the firm of Jason Emerson & Son in manufacturing textile goods, with mills in Massachusetts and Connecticut. The firm lost heavily in the Boston fire of 1872. Later he entered the retail clothing business at Providence, but went to Boston soon after as proprietor of a store. It was after his Boston venture that he became connected with the Apsley Rubber Co.

JOHN F. PETTY.

John F. Petty, who for 40 years was a foreman and master mechanic at the plant of the National India Rubber Co., Bristol, died at his home on Cook street in that town on April 24. He had been ill for four years. Mr. Petty was appointed foreman of the machinists' department of the factory in 1869, and continued at work there until his illness began. He was a native of Tiverton, Rhode Island, was in his 79th year, and on September 15, 1907, celebrated his golden wedding anniversary.

NEW TRADE PUBLICATIONS.

BAILEY'S RUBBER STORE, Boston, Massachusetts, controlled by C. J. Bailey & Co., has distributed quite a large edition of a small pocket catalog of 32 pages and cover, describing and illustrating the great variety of rubber goods handled by this company, particularly rubber clothing suited to all occupations—automobiling among others.

The United States Rubber Co., New York, is circulating a little leaflet describing its "Unika" brand of footwear, consisting of a line of white rubbers made in various styles, and especially in the foothold style. Accompanying this leaflet is a card for the retailer's use in his window, showing a white croquet and a croquet foothold.

The Editor's Book Table.

PEEPS AT INDUSTRIES—RUBBER. BY EDITH A. BROWNE. Adam and Charles Black: London. [Cloth covers. 8vo. Pp. 88, 24 full-page illustrations.]

THE reviewer has perused this particular book with a double pleasure, first, because whatever Miss Browne writes makes good reading, and in the second place, because she is numbered among the most esteemed contributors to THE INDIA RUBBER WORLD.

This is not a technical volume, intended for rubber experts. It is just what its name implies—a peep at the great rubber industry. As a matter of fact, it really is more than its name implies, for it is more than a peep; it is an intelligent survey of the whole rubber field, and it gives the general reader all the information he needs in order to put him in a position fully to appreciate the scope and importance of this great industry.

While there are only 88 pages of text, the author has succeeded in weaving into those pages a great deal of information. "Weaving" is quite the proper term to use, for this information is not tacked on here and there, but is an integral part of an exceedingly interesting story, which has many romantic threads running through it. As an illustration of this latter characteristic may be cited the opening chapters of the book, where an imaginery but undoubtedly accurate picture is drawn of the way in which the aborigines—many years, possibly hundreds of years—before the first line of rubber history was written, discovered the peculiar properties of the latex of the rubber tree.

The author describes the gathering of rubber in its wild estate, and on the plantation. She shows the methods of tapping, and coagulating in getting the *Hevea* rubber of Brazil, the *Castilloa* of Mexico, the *Sapium* of British Guiana, the *Funtumia* and *Landolphia* rubber of equatorial Africa, and the methods of tapping and coagulating in vogue on the plantations of the Middle East. One chapter is devoted to a visit to a raw rubber factory, and gives a description of the method of converting the latex into the rubber of commerce as it is pursued on the more important estates.

The 24 full-page illustrations greatly enhance the value of the book, as they run the whole gamut of rubber gathering from the tapping of the wild trees in the South American and African forests to the more orderly method of work in vogue on the plantations. These illustrations have been selected with discriminating care, with reference not only to their subject matter but to their artistic and photographic excellence.

As the name indicates, this book is one of a series of brief surveys of great industries—this being the second, a book on sugar being the first. If the other books of this series are written with equal skill—if they mingle information and entertainment as felicitously as the author has done in this book—the series will certainly meet with great success.

THE CHEMISTRY OF THE RUBBER INDUSTRY. BY HAROLD E. Potts, M. Sc. London: Constable & Co., Limited, 1912. [Cloth. 8vo. 146 pages.]

As rubber has been justly styled "the colloid *par excellence*." Mr. Potts' able treatise appropriately starts with an outline of the colloidal phenomena connected with that substance, thus leading us to the chemistry of the rubber industry in its practical application.

The work of the chemist begins, when the latex has been obtained, with the selection of the most suitable method of coagulation and subsequent treatment, in order to produce rubber of the best quality and as uniform as possible in its properties. The colloid; being thus a collodial problem.
with special reference to the protein which is present. Coagulation (or the coalescence of the rubber globules) apparently depends upon the removal of the protective film of protein or other colloid; being thus a colloidal problem.

Five different methods of coagulation are described in their general character and subdivisions—by heat, creaming, chemical agents, beating and soaking, and extraction with solvents.

While there is a fair constancy in the properties of wild Pará, the variations in the general appearance of plantation rubber and in its behavior on vulcanization form the chief problems now confronting the planter. The quality of the latex on the same plantation varies not only with the age of the tree, but also with its location. Hence Mr. Potts suggests that some plan should be devised by which the method of coagulation can be adjusted according to the quality of the latex.

After dealing with the question of washing, Mr. Potts takes up the subject of the constituents of technically pure rubber, which is treated in detail. Then follows a discussion of loss in washing and of moisture, as well as of the proportions of resin, insoluble matter, nitrogen, ash and rubber itself, as revealed by analysis. Gutta-percha and balata are likewise considered from the same points of view.

The fact that rubber manufacture has been defined as the "art of compounding," emphasizes the enormous importance of judicious mixing. It is not enough to use good raw rubber; it is also necessary to select the most suitable compounding ingredients which will yield a mixing best satisfying the requirements as to various properties at the required price. Chemical work actively controls the quality of the raw materials used and cures faults by altering existing mixings.

In connection with mixing the questions of waste and reclaimed rubber as well as of rubber substitutes are appropriately dealt with, followed by the consideration of inorganic compounding materials in their various forms. In this connection special reference is made to "Crude Rubber and Compounding Ingredients," by H. C. Pearson.

In the final chapter is treated vulcanization, to which fundamentally important invention is due the great development of the use of rubber.

Dealing with the various processes for the production of synthetic rubber Mr. Potts remarks that while these processes are very numerous, an effective one will have to produce isoprene very cheaply, it being doubtful whether many of them are capable of doing so for large quantities.

Such are a few of the salient points of Mr. Potts' valuable work, indicating close study and diligent investigation of the chemistry of the rubber industry, the contents of the book fully justifying its title.

An "author's index" supplements the regular "subject index" and enhances the value of the work for purposes of reference.

THE BRITISH WEST INDIES, THEIR HISTORY, RESOURCES AND Progress. By Algernon E. Aspinall, author of "The Pocket Guide to the West Indies." Little, Brown & Co., Boston, Mass. 1912. [8vo. Pp. 435. Board covers.]

People interested in the West Indies will remember Mr. Aspinall's hand book of those islands, published a few years ago, which contained a great deal of useful information in small space. His new book is much more pretentious, and much more complete; it gives all the essential information regarding the history, climatic conditions, physical aspects, and potentialities of the British possessions in and around the Caribbean Sea. These possessions have not had the attention they should have received from the English public, in view of their importance and possibilities; but

there has recently been a great awakening of interest—not only among the English, but among Americans in all of the West Indian Islands. The opening of the Panama Canal, which bids fair to take place promptly on the advertised date, will tremendously increase the importance of many of these islands.

While of the 435 pages contained in the book, only 9 of them are devoted to rubber, those 9 pages are naturally most interesting to the greater part of the readers of this publication. Rubber cultivation is an industry of comparatively recent date in the West Indies, but within the last few years—particularly since the great possibilities in rubber plantations have been shown by many phenomenal successes in the Middle East—a great deal of rubber interest has been aroused in certain of the West Indies. In Trinidad and Tobago alone, there are now some 33,000 acres of rubber plantations—30,000 being planted to *Castilloa*, and 3,000 to *Hevea*. In Tobago alone, there are over 120,000 trees. Six years ago this island exported less than 100 pounds of rubber; last year its exports amounted to nearly 5,000 pounds, and very few of the planted trees have yet reached an age for tapping, so from now on, the exports will rapidly increase. A little rubber planting has taken place in some of the other islands—namely, St. Lucia, Dominica and Jamaica, but they have not reached the export stage.

In British Guiana there are now 1,700 acres planted to rubber—1,000 acres to *Hevea Brasiliensis*, and 700 to *Sapium Jenmani*. The chief rubber industry of British Guiana, however, is in the export of balata, which is bled from the indigenous balata or bully-tree. This industry amounted last year to over 1,000,000 pounds, valued at nearly one-half million dollars.

It will be interesting to prospective planters to know that there is a vast deal of land, finely suited for rubber cultivation, still belonging to the Crown that can be acquired under very easy conditions. According to Mr. Aspinall, it is estimated that there are still in British Guiana, 9,000,000 acres of Crown land, "eminently suitable for the cultivation of rubber"—land that resembles in nearly all its conditions those tracts in Brazil, where the *Hevea Brasiliensis* reaches its highest perfection.

Considering the small number of the pages devoted to rubber, the author has managed to pack into them a great deal of valuable information.

INSECT PESTS OF THE LESSER ANTILLES. BY H. A. BALLOU, M. Sc., Entomologist of the Imperial Department of Agriculture for the West Indies; 1912. [8vo. Paper. 194 pages with 185 illustrations.]

Those who have not made a study of entomology may fail to recognize the fact, that its definitions and distinctions are as minute as those of any other branch of natural research. Quite as exact as the terms of botanical differentiation are those of entomological description; with the additional difficulty, that while the objects described are in the one case often examples of living vegetation, they are in the other usually dead and grouped together as found, after long and patient search.

Seeing the inherent difficulty of his task, Mr. Ballou is to be congratulated on the completeness of its execution. Following him through his treatment of the subject, it will be noted that he keeps in view the insects of the Lesser Antilles, locating them in the first place among the group of "arthropods," or insects with jointed limbs. This group is itself divided into four classes: Crustacea, arachnida, myriapoda and hexapoda. Roughly speaking the equivalents of these four scientific terms would be: Crabs, spiders, multipedes and insects. These definitions are further elucidated by eight illustrations.

Next comes the general question of the natural history of insects, including the points which insects have more or less in common. These points (treated in detail) comprise: Structure and growth; senses; circulation; respiration; nervous system; digestion; reproduction.

The class of hexapoda (or insects properly so called) is, as will be remembered, one of the four classes of the group of arthropods. This class is itself divided into ten orders: Straight-winged; fringe-winged; half-winged; dragon flies; flat-winged; nerve-winged; scale-winged; sheath-winged; two-winged; membrane-winged. Thus tracing an insect through the various definitions of group, class and order, it has in each case a distinct place in the economy of nature.

At this point Mr. Ballou takes up the practical part of his subject: insect pests of crops; successively dealing with cotton; sugar-cane; citrus fruits; cacao; Indian corn; arrowroot; tobacco; sweet potatoes; cocoanuts; rubber; nutmegs; bananas; yams; beans; miscellaneous plants.

The several species of rubber-producing plants cultivated in the Lesser Antilles are more or less subject to the attacks of scale insects, *Castilloa* being particularly so, and *Hevea* being less liable to them. The common mealy bug is often found in the leaves of *Castilloa* trees, causing, however, less injury than might be anticipated, as these trees shed their leaves at intervals. *Funtumia* rubber is very liable to attack by the green shield scale, while the Ceara specimens now being grown are attacked by a flat black shield scale. *Castilloa* trees are sometimes attacked by a borer, the larva of one of the long-horned beetles.

In the concluding chapters, Mr. Ballou deals with the insects which respectively attack man, domestic animals and stored products. Preventive and remedial measures are fully discussed, an interesting feature of this section being the consideration of the control exercised by the natural enemies of insects.

One of the most noticeable points of Mr. Ballou's interesting work is the sharpness of the illustrations (185 in number), which bring out the objects with microscopic clearness. The text is throughout lucid and condensed, the whole work reflecting much credit on its author.

A LECTURE ON THE PARA RUBBER TREE (HEVEA BRASILIensis. By W. J. Gallagher, M.A., Director of Agriculture F. M. S.). Kuala Lumpur, 1912. [Paper. 8vo. 27 pages.]

While much has been written about the cultivation and treatment of the Pará rubber tree, the lecture by W. J. Gallagher, Director of Agriculture, Federated Malay States, delivered before various planters' associations in 1909 and 1910, treats in detail the physiology of that tree and the operation of tapping. Such a talk from a practical man to practical men has undoubted value.

The ideal system of tapping, in Mr. Gallagher's opinion, is most likely to be evolved by the scientist, as a compromise between scientific necessity and practicability. Meanwhile he urges planters to learn all they can of the build of the tree and what they do to it, besides extracting latex, when cutting away part of its living body, as in ordinary tapping.

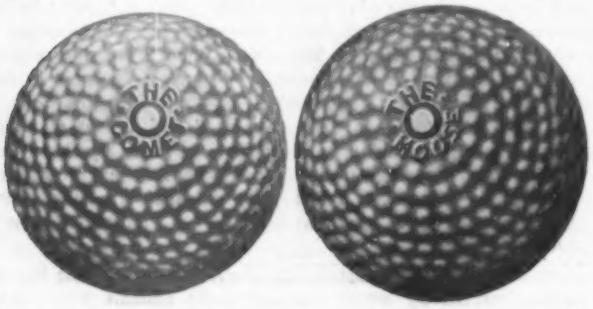
ALGOT LANGE'S "IN THE AMAZON JUNGLE."

Our May issue contained a review of Algot Lange's exceedingly interesting book, telling of his unique experiences in the jungles of the upper Amazon. The review as written contained this sentence: "He has set down the facts as they befell; and if many of them seem rather remarkable and others of them quite miraculous, that's the reader's gain." But the compositor, with the perverseness of his kind, after proofs had been carefully read and approved, in a moment of unholy abandon changed *miraculous* to *ridiculous*—a horse quite of another color. There was much in Mr. Lange's jungle-adventure that might properly be called miraculous, but nothing assuredly that could be called ridiculous.

New Rubber Goods in the Market.

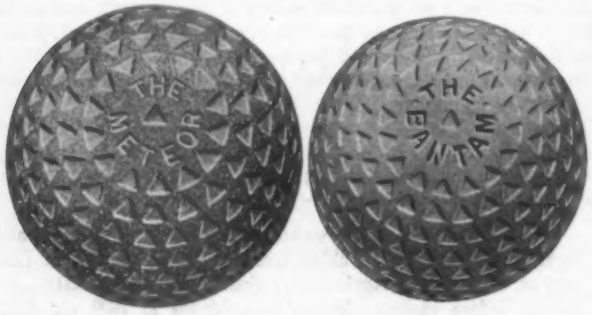
SOME 1912 GOLF BALLS.

GOLF players will be interested in these four golf balls, which are offered for the present season by The B. F. Goodrich Co. The two illustrations immediately below show the pebble marking. One is the "Comet" and the other the "Moose." These are both full-sized balls. The Comet is intended to satisfy players who insist that nothing else is quite as good as the old popular pebble marking. The ball is built for hard work. The



Moose, which is similarly marked, is a litle higher-priced ball. It floats and can be depended upon for long distance work.

The two balls shown below, the "Meteor" and the "Bantam," have triangular depressed marking. The Meteor is a full-sized



ball, floats in water, and the center and cover are constructed expressly to resist glancing and topping blows. The Bantam is a smaller-sized ball and sinks in water. It is good for long courses, and is popular with strong, accurate, hard-hitting players. Being a small ball it is particularly serviceable when the play is against the wind. [The B. F. Goodrich Co., Akron, Ohio.]

AEROPLANE AND MOTORCYCLE TIRES.

Aeroplane tires are, to be sure, not in very general use at present, as many people are still struggling along without this latest means of conveyance, but the aeroplane tire is a very essential part of the aeroplane. They are usually of especially fine construction in order to have them at once light, resilient, and exceedingly strong. The accompanying cut shows a tire which is made in three sizes 20 x 2, 20 x 2¼ and 20 x 3.

AN AEROPLANE TIRE.

ANTI-SLIP MOTORCYCLE CASING.

We show also a section of a motorcycle casing and a motorcycle inner tube made by the same company. The casing, it will be noted, is studded to give it a non-slipping quality. [Continental Rubber Works, Erie, Pennsylvania.]

MOTORCYCLE INNER TUBE.

A REVOLVING RUBBER HEEL.

You remember that "wonderful one-hoss shay" that Oliver Wendell Holmes wrote about, that was constructed in such a uniformly durable manner that no part of it gave out until it all gave out together? Now here is a rubber heel that is constructed on the same principle, for you can wear it until every part of it is absolutely gone. It is called the Gyroheel, because it revolves. It is a round disk of rubber with a raised edge and concave in the center. It is held on the leather heel by a screw that goes through this concave center; then as the edge of the heel becomes worn, it can be given a little turn, and in this way the heel lasts until the entire edge all around is worn off. It is an economical heel to begin with, and can be adjusted by the wearer himself. Of course, it does not cover the two corners of the heel as the old style rubber heels do, but, against this objection can be cited its economy, and the ease with which it can be attached. [The James Manufacturing Co., Cleveland, Ohio.]

A NIPPLE THAT'S DIFFERENT.

The baby holds an important position in the commercial world. Many devices have been invented for his comfort, welfare and peace of mind. Among them is the new ball-cup nipple illustrated herewith. The ball at the top of the nipple is an open cup, from the bottom of which a puncture leads into the nipple. This puncture thus located is not enlarged by use, but remains at a fixed size, and regulates the quantity of nourishment. The ball is easily turned for cleansing; and obviously cleanliness in devices of this sort is much to be desired. [The Hygeia Nursing Bottle Co., Buffalo, New York.]

A HAIR NET WITH A RUBBER BAND.

Expert mathematicians have estimated that the average woman spends one-tenth of her life fixing her hair. When you stop to think that this is one whole year out of every ten, the pro-

found seriousness of this situation is brought home with great force. Now here is a little device which saves a great deal of that time. It is a delicate, almost invisible, silk net with a rubber band. The net holds the wayward locks in place and the rubber band holds the net to its work. It is made by Theo. H. Gary Co., No. 41 Union Square, New York.

EVERY ROOM A BATH-ROOM.

THERE is no longer any excuse for anyone to belong to "the great unwashed," for here is a new patent bathing apparatus that can be used in any room, and be carried wherever one may go. It consists of a metal receptacle holding about a gallon of water, which is put on a shelf above the head or hung up against the wall. From the bottom of this receptacle there is a rubber tube 5½ feet long, terminating in a patent "applicator" which is a sort of brush with a metal frame and hard rubber back into which bristles, soft or stiff, as may be desired, are inserted. The water comes out through these bristles. There is, in addition a receptacle in which the bather stands. This when not in use, can be folded into a small compass. When it is to be used it is spread out flat on the floor, and being rubber-finished holds the water. It has raised edges so that the rest of the room is kept perfectly dry.

PORTABLE OUTFIT IN USE

Under the metal receptacle there is a small metal heater that uses denatured alcohol, which enables the bather to have the water at any desired temperature; you can also regulate the flow. The brush not only distributes the water, but enables the user to give himself as much friction and massage as he may wish. The whole apparatus can be tucked away in a small space and is quite inexpensive. To people who have not convenient or adequate bath facilities this certainly should be a boon. [The Allen Manufacturing Co., Toledo, Ohio.]

THE FLAP IS THE FEATURE.

You will notice in the accompanying illustration of a motorcycle tire that the casing on one side ends in a wide flap that is so constructed as to lie under the opposite bead of the casing,

instead of resting, as is usually the case, on the inside of the opposite wall. This new arrangement is said to eliminate the possibility of the crimping or pinching of the inner tube. In addition to the "Gridiron" tread shown here, the same company make a "Studded" tread otherwise similar in construction. [Kokomo Rubber Co., Kokomo, Indiana.]

WATER AND HEAT-PROOF FIREMEN'S SUITS.

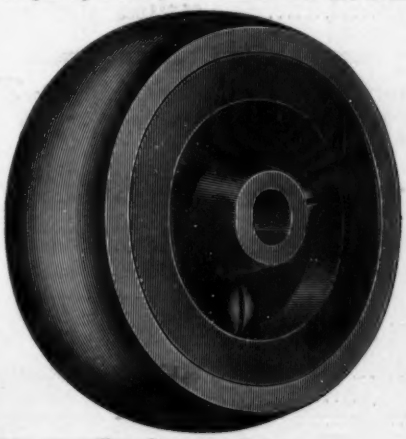
A suit especially adapted for firemen, being water-proof and heat-proof, is here shown. It is soft and pliable, with a smooth finish that will not catch on nails, etc. It is composed of two

THE "UPTHEGROVE" FIREMEN'S SUIT.

pieces of cloth cemented together with rubber between. In this way the rubber is not exposed to the heat or to the air and yet the suit is absolutely waterproof. It comes in tan color, light and dark, and has a patented fold device under the arm which, while not bulky, gives absolute freedom of motion to the arms. The coats of these suits come 38 inches long, unless especially ordered different. [Upthegrove Sporting Goods Co., Valparaiso, Indiana.]

IT SAVES THE FLOORS.

The ordinary metal caster, on a piece of furniture that is frequently moved, is liable to mar the floor. The caster which is here illustrated has a rubber tire, which prevents any marring of the floor. It has an additional advantage moreover where it is used on small trucks, such as are wheeled around in stores for the distribution of packages, in that it renders the work of the truck noiseless. [The M. B. Schenck Co., Meriden, Connecticut.]



THE SCHENCK CASTER.

STILL PLENTY OF "BIKERS."

A great many people think because bicycles are no longer as numerous on the streets as formerly, that the bicycle has practically disappeared. This, however, is not the case, as can be judged from the fact that the yearly output of bicycle tires continues to be an item of considerable importance. During 1911 at the United States Tire Co., Hartford factory, 443,445 bicycle tires were manufactured and very few of them consigned to export. The Indianapolis plant of the same concern produced an equal number. This is a sufficient number of tires to equip almost half a million bicycles.

News of the American Rubber Trade

BOSTON WOVEN HOSE AND RUBBER CO.'S NEW OFFICES.

The Boston Woven Hose and Rubber Co., of Boston, Massachusetts, has opened new offices in the Hudson Terminal Building, corner of Cortlandt and Church streets, New York. This location is central and very convenient for the company's customers. The stock will be carried as heretofore at the warehouse, at 116 Duane street, only a few blocks' distance from the offices.

WOONSOCKET RUBBER CO.

The Woonsocket Rubber Co., Woonsocket, Rhode Island, one of the subsidiary companies of the United States Rubber Co., has filed the following statement of its condition as of March 31 last:

Assets	1912.	1911.
Real Estate	$ 847,218	$ 847,218
Machinery	318,212	307,603
Manufacturing merchandise, material and stock in process	2,760,699	3,248,012
Cash and debts receivable	106,929	93,746
Miscellaneous	11,011	5,397
Adjustment of inventory	1,198,994	1,198,994
Total	$5,243,063	$5,700,970
Liabilities		
Capital stock	$3,000,000	$3,000,000
Accounts payable	310,122	681,946
Profit and loss	318,958	225,124
Miscellaneous	83	.....
Floating indebtedness	.....	150,000
Surplus	1,613,900	1,613,900
Total	$5,243,063	$5,700,970

STATEMENT OF GUTTA PERCHA & RUBBER MANUFACTURING CO.

The Gutta Percha and Rubber Manufacturing Co., New York City, reports the following statement of its condition on April 1, 1912:

Assets	1912.	1911.
Real estate	$ 131,000	$ 128,000
Machinery	150,000	150,000
Mfg., mdse., mat'l & stk. in process	621,000	618,101
Cash and debts receivable	399,120	427,175
Total	$1,301,120	$1,323,276
Liabilities		
Capital stock	$1,000,000	$1,000,000
Accounts payable	67,340	123,276
Surplus	233,780	200,000
Total	$1,301,120	$1,323,276

SOME ATTRACTIVE BLOTTER ADVERTISING.

THE Boston Rubber Shoe Co. has sent out to the trade a set of eight or ten different blotters showing some handsome pictorial scenes and advertising a number of the popular boots and shoes made by this famous old company; among them the "Warrior" all-duck boot, the "Storm Slipper" with a service heel, and the "Norwood," a croquet for women and children. These blotters are not only useful but artistic. Jobbers can get them, in limited quantities, by applying to the company's advertising department, 42 Broadway, New York.

POLACK TYRE AND RUBBER CO.

THE Polack Tyre and Rubber Co., Broadway and Fifty-ninth street, New York, recently incorporated under the laws of the State of New York, has taken over all the assets and assumed all the liabilities of the old Polack Tyre Co., recently dissolved. The capital stock of the new company is $700,000, of which $200,000 is preferred stock, issued for cash at par, and represents the new capital invested. This reorganization is for the purpose of providing better distributing facilities and for increasing the selling organization. The company's manufacturing arrangements will probably be improved by the erection of a new plant.

STATEMENT OF THE AMERICAN RUBBER CO.

The statement of the American Rubber Co., one of the subsidiary companies of the United States Rubber Co., shows the following condition on March 31, 1912:

ASSETS.	1912.	1911.
Real estate	$251,489	$207,864
Machinery	178,534	167,747
Manufacturing, merchandise, material and stock in process	1,871,489	2,198,154
Cash and debts receivable	474,379	306,644
Lasts	27,495	22,000
Patent rights	1,680	1,680
Miscellaneous	9,857	4,129
Total	$2,814,923	$2,908,218
LIABILITIES.		
Capital stock	$1,000,000	$1,000,000
Accounts payable	142,204	529,339
Unpaid dividend	100,000	.....
Surplus	1,572,719	1,378,879
Total	$2,814,923	$2,908,218

STATEMENT OF THE MANHATTAN RUBBER MFG. CO.

The Manhattan Rubber Manufacturing Co., Passaic, New Jersey, reports the following statement of its condition on February 1, 1912:

ASSETS.	1912.	1911.
Real estate	$306,017	$307,188
Machinery	372,203	382,002
Merchandise	746,629	768,864
Cash and debts receivable	628,894	618,055
Total	$2,053,743	$2,076,109
LIABILITIES.		
Capital stock	$750,000	$500,000
Accounts payable	273,672	340,013
Floating indebtedness	440,000	670,000
Surplus	590,071	566,096
Total	$2,053,743	$2,076,109

The United States Rubber Co. has extended to July 1 the period during which the extra discount of 5 per cent. on rubber boots and shoes applies. According to the announcement sent out the 1st of February, this discount extended only to May 1.

FRANCIS H. APPLETON MEETING THE KING.

When the Ancient and Honorable Artillery goes to England this summer, it will be under the command of First Lieutenant Francis H. Appleton. The company will sail from Boston on the steamer "Arabic" July 2, and is due to arrive in Liverpool on July 10. It will proceed immediately to London, remaining there until July 30. On Monday, July 15, the company will be reviewed by King George at Buckingham Palace. The return trip will be made on the steamer "Celtic," leaving Liverpool August 1, arriving in New York August 8, and reaching Boston the next morning, where the returning warriors will be received with appropriate honors.

FRANCIS H. APPLETON

A. S. Funk, treasurer of the La Crosse Rubber Mills Co., La-Crosse, Wisconsin, who also has general charge of the plant (which makes a full line of rubber footwear and specializes in tennis goods) has recently been making a tour of the rubber centers in the east. He states that the business of his company has increased 50 per cent. during the past year.

Ernest E. Buckleton, general manager of the Northwestern Rubber Co., Ltd., Litherland, Liverpool, England, who has recently crossed the United States on his way home from a visit to Japan, sailed from New York on the "Lusitania," May 28.

R. L. Baird, of the Rubber Trading Co., New York, who spends much of his time traveling among rubber mills, is doing an increasingly satisfactory business and becoming a marked favorite with many purchasers.

William J. Golden, who was foreman of the mechanical fabric and sundries departments at the plant of the National India Rubber Co., Bristol, for a number of years, until they were recently removed to Cleveland, has accepted a similar position with the Vulcanized Products Company at Muskegon, Michigan.

Arthur E. Friswell, who will be remembered as having been one of the most expert pneumatic tire producers, and who was connected with the Mechanical Fabric Co., Providence, Rhode Island, for a number of years, and later with the Goodyear Tire & Rubber Co., Akron, Ohio, has bought a home in Bermuda and intends to make that his permanent residence.

Leon Ekert, of the firm of Ekert Brothers, Hamburg, Germany, sailed from New York for Hamburg on May 14, on the North German Lloyd steamer, the *Kronprinzessin Cecilie*. Mr. Ekert was in this country about three weeks and visited, among other points of interest, the mills of the Boston Rubber Shoe Co., at Malden, Massachusetts, and of the Candee company at New Haven, Connecticut. His firm has been distributing the footwear of these two factories, particularly the Candee brand, for the last 15 years. The firm of Ekert Brothers is known on the continent as a particularly enterprising concern, advertising generously and distributing a large quantity of goods.

William Keyes has recently taken a position as sales manager of the Chicago Rubber Clothing Co., of Racine, Wisconsin. He is already very well known to the rubber trade, as he has had many years' experience as a jobber and a manufacturer. He formerly had a controlling interest in the firm of Prescott Brothers, general distributors of rubber goods in Boston, Massachusetts. He has charge for the Chicago Rubber Clothing Co. of all the territory east of Omaha.

Frank L. Byrne, who is very well and favorably known to rubber manufacturers in the United States, and is a member of the staff of the New York Commercial Co., is assisting Harold P. French, the Akron agent of the company, during the illness of Mr. French's assistant, Mr. Baldwin.

I. W. Easton, who for a number of years was connected with Noyes Bros. & Cutler, St. Paul, Minnesota, has resigned and taken the position of first assistant in the sundries department of Lehn & Fink, New York, succeeding W. J. Cathcart. Mr. Easton has had many years' experience in the druggist sundries line, and carries with him to his new position the good wishes of the trade.

Thomas W. Harmer, who founded the Harmer Rubber Reclaiming Works at East Millstone, New Jersey, has left that company, and no longer has any connection with it.

MR. MANDERS RETURNS TO NEW YORK.

A. Staines Manders, the organizer of the Rubber and Allied Trades Exposition, to be held in Grand Central Palace, New York City, next September, arrived in New York on the "Olympic" on May 22, after six weeks' stay in London, devoted to advancing the interests of the exposition in the English and Continental fields.

Mr. Manders will remain in New York continuously until after the exposition. His efforts abroad have been attended with signal success, and the number of foreign exhibits will be extremely large. This does not mean, however, that it will be chiefly a crude rubber show, for while the planters will make a generous exhibit, only one-third of the exposition will be devoted to crude rubber—the other two-thirds being divided equally among rubber manufactures and the allied trades.

The exposition will bring to New York a large number of people interested in the rubber industry from foreign countries, including a great many buyers of manufactured goods. This will give an opportunity to American manufacturers profitably to exploit their products, that they have not been slow to appreciate. As a result a great number of the leading manufacturers of the United States have already contracted for space.

SUPERINTENDENT COLT ENTERTAINS SALESMEN.

THE traveling salesmen of the wire department of the National India Rubber Co. were given a May-day outing and Rhode Island clam-bake by Superintendent LeBaron C. Colt, at Poppasquash—the famous farm belonging to his uncle—Colonel Samuel P. Colt, president of the United States Rubber Co. On the previous evening they had been given a reception by Superintendent Colt at his own home in Bristol.

PROMOTION FOR CAPTAIN TOWNSEND.

THE first appointment made by Major General John F. O'Ryan, who was recently given chief command of the New York State National Guard, was that of Captain Arthur F. Townsend of Squadron A, to the position of Gen. O'Ryan's quartermaster. Captain Townsend, who is president of the Manhattan Rubber Manufacturing Co., has had 25 years' experience in the New York National Guard, beginning as a private in the Seventh Regiment in 1887, and becoming a member of the famous Squadron A in 1901.

UNITED STATES RUBBER CO.'S ISSUES.

TRANSACTIONS on the New York Stock Exchange for four weeks, ending May 25:

COMMON STOCK, $25,000,000.

[The treasury of a subsidiary company holds $1,334,000.]
Last Dividend, April 30, 1912—1%.

Week	May	4....	Sales	15,300	shares	High	60¼	Low 56⅞
Week	May	11....	Sales	7,420	shares	High	58¾	Low 56
Week	May	18....	Sales	18,300	shares	High	62¾	Low 58½
Week	May	25....	Sales	66,260	shares	High	67⅞	Low 61⅞

For the year—High, 67⅞, May 21; Low, 45¼, February 1.
Last year—High, 48½; Low, 30½.

FIRST PREFERRED STOCK, $39,824,400.

Last Dividend, April 30, 1912—2%.

Week	May	4....	Sales	1,400	shares	High	114½	Low 113¾
Week	May	11....	Sales	500	shares	High	114⅜	Low 113½
Week	May	18....	Sales	1,217	shares	High	114¾	Low 113¾
Week	May	25....	Sales	5,764	shares	High	116	Low 110

For the year—High, 116, May 20; Low, 109, January 30.
Last year—High, 115½; Low, 104,

SECOND PREFERRED STOCK, $9,965,000.

Last Dividend, April 30, 1912—1½%.

Week	May	4....	Sales	1,300	shares	High	80	Low 79
Week	May	11....	Sales	430	shares	High	80	Low 78⅞
Week	May	18....	Sales	1,100	shares	High	80½	Low 79½
Week	May	25....	Sales	10,275	shares	High	85½	Low 80¾

For the year—High, 85½, May 21; Low, 75, January 23.
Last year—High, 79; Low, 66.

SIX PER CENT. TRUST GOLD BONDS, $18,000,000.

Outstanding of the 1908 issue of $20,000,000.

Week	May	4....	Sales	35	bonds	High	104⅝	Low 104½
Week	May	11....	Sales	46	bonds	High	104⅝	Low 104½
Week	May	18....	Sales	52	bonds	High	104⅞	Low 104½
Week	May	25....	Sales	69	bonds	High	104¾	Low 104½

For the year—High, 105, February 24; Low, 103¼, January 6.
Last year—High, 103; Low, 101¾.

THE APPALLING AMERICAN FIRE WASTE.

THE following statement from the address of Governor Charles S. Deneen, of Illinois, before the National Fire Protection Association at its annual meeting, held in Chicago, May 14 to 16, which shows the great—in fact appalling—fire waste in this country as compared with European countries, will be of interest to business men in general and particularly to manufacturers and dealers in rubber fire hose.

"According to statistics of the Interior Department of the United States Government for the year 1910 the fire loss in the United States was more than $234,000,000. And in addition to the loss of this property these same statistics show that 1,449 lives were sacrificed by fire and 5,654 people were injured through this same agency. This tremendous drain upon the financial resources of this country as indicated by these statistics does not include any of the cost borne by the cities and villages throughout the country for the maintenance of the equipment to fight fire.

"European nations have dealt with this problem with a signal degree of success and the result of restrictions in building laws and improved building conditions, inspections and the awakening of the mind of the people to a full realization that a loss by fire is a loss forever has proven to the students of this question how much criminal wastefulness our people are guilty of in this country. In 1910 thirteen of the largest cities of Germany with a combined population of five and one-half millions suffered a fire loss of $1,067,205. Five American cities, to wit, Chicago, Philadelphia, Boston, St. Louis and San Francisco, with a combined population of 100,000 less, suffered a fire loss during the same period of nearly fifteen million dollars. The city of New York, last year, suffered a fire loss of five times the loss of London and nine times that of Paris. In Berlin, a city of about equal size to Chicago, the average fire loss is less than $200,000, while in Chicago the annual property loss by fire for the past five years has been about forty-seven times as much. Between 1901 and 1910 the per capita loss to every man, woman and child in the United States was $2.71 for this fire waste, while the European was paying on an average of thirty-three cents and the German was only called on to pay nineteen cents. Between 1900 and 1909 the population of the United States increased seventy-three per cent., while the fire loss increased 134 per cent."

SEVERE HOSE SPECIFICATIONS.

The following letter has been received from a dealer in fire hose in a western town regarding the specifications for hose issued by the local fire department:

TO THE EDITOR OF THE INDIA RUBBER WORLD, Dear Sir:—The specifications for fire hose issued by the local fire department state that the hose must be put under a pressure test of 400 pounds to the square inch, after which one 50 foot length shall be cut in two, 25 feet from the coupling, and if same shows corrugation all of the hose must be rejected. We do not consider this a fair proposition to the manufacturer, and would like your opinion on it. Is it not a fact that if hose does not show some corrugation after being under a 400 pounds pressure, it is reasonable to suppose that the tube has been over-vulcanized for the purpose, and that, therefore, it will not give as good service as hose that showed some corrugation at the time it was cut? And, furthermore, what hose shows after 400 pounds is no criterion, because it is practically impossible for the hose to be used at a fire under as high pressure, 200 pounds or a little more being the greatest possible pressure that could be put on a 2½-inch hose by an engine at a fire. We submit this to you and would like your opinion, recognizing that you are an authority in the matter.

W. A. C.

THE RUTHERFORD RUBBER MANUFACTURING CO. MAKING TIRES.

The Rutherford Rubber Co., whose factory is located at Rutherford, New Jersey, has, within the short time it has been in the tire business, built up a very creditable trade. The factory is now running a day and night shift, turning out 200 tires a day, and when the new big calender ordered from the Farrel Foundry & Machine Co. is delivered—which will probably be within the next two weeks—the capacity will be raised to 300 tires a day. The tires made by the company are known as the "Sterling"; they are made both in straight wall and in quick detachable clincher type. The company makes an anti-skid tire known as the "Sterling Spur" tread, and has an application in the patent office covering a new extra heavy anti-skid tire. The "Sterling" blue inner tubes and gray inner tubes are also made at the Rutherford factory. These tubes are seamless throughout, being rolled from a single piece of rubber vulcanized solidly throughout, then spliced by vulcanization instead of by the acid cement cure. The blue tubes are covered with a blue gum layer to keep out light rays, and are also impregnated with flour of mica, which acts as a non-conductor of heat.

Another specialty of the Rutherford Company is the "Sterling" red backed hoof pad, the distinguishing feature of which is the fact that the heel is vulcanized on to the fibre back.

The officers of the company are: Charles Austin Bates, president; Spencer Welton, vice-president; J. A. Miller, treasurer; Frank DeWitt, secretary.

An interesting feature of the Rutherford Company's work is the issue from time to time of a little magazine called "The Sterling Spur," which, while primarily intended to exploit the company's tires and hoof pads, at the same time, contains a deal of entertaining reading. The quality of this reading will be readily inferred from the fact that the president, Charles Austin Bates, contributes to the magazine very frequently. He probably is the best known writer on advertising and other business problems in the country.

TRADE NEWS NOTES.

The Walpole Rubber Co., 185 Summer street, Boston, recently opened a store at 757 Boylston street, for the distribution of its tires, made under the famous Bailey tread patent.

The Elwell Rubber Manufacturing Co., 170 Summer street, Boston, manufacturers of Panther heels, recently acquired the former works of the Plymouth Rubber Co., Stoughton, Massachusetts, the Plymouth Rubber Co. having moved its business to its new factory at Canton, Massachusetts.

The Corona Rubber Co., Montreal, Canada, has been absorbed by the Columbus Rubber Co., of that city.

The factory of the Interstate Rubber Co., South Norwalk, Connecticut, was badly damaged by fire on May 4. The fire occurred in the forenoon in a room containing 120 men and women, all of whom fortunately escaped with the exception of one boy, who was painfully but not fatally burned in his attempt to fight the flames. It is supposed that the fire originated in a can of cement and the large amount of inflammable material made its progress extremely rapid. The damage was estimated at $15,000.

The company will not resume operations in South Norwalk, but expects to move to Springdale, a suburb of Stamford, Connecticut.

All those people who have reason to desire to keep out of the way of the police of Newark, New Jersey, will be sorry to learn that the bicycles in use in the police department of that alert city have all been equipped with Fisk tires.

The American Rubber Co. will build, this summer, a two-story brick administration building at a cost of about $30,000.

J. W. Coulston & Co., of New York, importers and manufacturers of dry paints and colors, recently moved to 80 Maiden Lane, where they have larger and more commodious quarters.

The executive offices and New York showrooms of the H. W. Johns-Manville Co., manufacturers of asbestos, magnesia and electrical supplies, have been moved from 100 William street, where they have been located for the past fifteen years, to the new twelve-story "H. W. Johns-Manville Building," Madison avenue and Forty-first street, New York City.

The Manufactured Rubber Company has declared a regular quarterly dividend of 1½ per cent. on preferred stock, payable June 1.

In order to accommodate the very large increase in the volume of its general business, the Loewenthal Company of New York has just taken a long time lease on an exceptionally commodious warehouse in Akron, Ohio. The building contains about 30,000 square feet, all on one floor. It has three team doors for loading and unloading, also five doors for the loading and unloading of cars. There is trackage for the entire length of the building—340 feet.

The Connecticut Mills Co., Danville, Connecticut, are completing the installation of their latest addition of looms and other equipment, which fills to its capacity their mill No. 1, and partly fills mill No. 2 recently added. They will proceed now with a complete equipment of mill No. 2. This mill has had an unusually fortunate record, due to the fact that all its officers are experienced in the business and familiar with the peculiar technical requirements of the product they manufacture, namely, auto tire fabrics. They also have an extensive acquaintance among tire manufacturers.

Mr. Tracy S. Lewis, treasurer of the Beacon Falls Rubber Shoe Co. (Beacon Falls, Connecticut), is president and treasurer of the Connecticut Mills Co.; Mr. R. J. Caldwell, vice-president; William B. Fittz, secretary and manager, and Messrs. R. J. Caldwell & Co., 374-378 Broadway, New York, selling agents.

The United States Rubber Co. has organized a new distributing agency under the name of The Hub Rubber Co., with George H. Mayo, of the firm of W. F. Mayo & Co., as president and treasurer. This new company will have two distributing points—one at 174 Congress street, Boston, and the other at 60 Thomas street, New York. It will be devoted to the distribution of the "Hub" brand of rubbers, made by the Boston Rubber Shoe Co.

The Gorham-Revere Rubber Co., which has offices in San Francisco, Seattle, Spokane, Los Angeles and other points on the Pacific Coast, has recently opened a new office in Sacramento, California.

The Fisk Rubber Co., Chicopee Falls, Massachusetts, has recently opened its new Pacific coast headquarters on Van Ness avenue, San Francisco, California. The building is two stories in height, of reinforced concrete, fronting 50 feet on Van Ness avenue, 150 feet on Austin avenue, with an "L" 25 feet on Pine street. The salesrooms, general and private offices, are on the main floor, which is finished in mahogany, with the walls artistically decorated. The basement and second story of the main building are used for storage and stock purposes. The main floor is used for changing tubes and cases, and the second floor for vulcanizing and repairing, with the most modern and complete equipment for handling any make of tire.

The Fisk direct branches in Seattle, Portland (Oregon) Fresno, Sacramento and Los Angeles are all included in the Pacific coast territory, with headquarters at San Francisco.

At a recent non-stop run made at Oakland, California, by the Warren car, the equipment consisted of Fisk tires, and during the entire run of 17,800 miles, covering 49 days, only seven casings were used, giving an average of over 10,000 miles of service for each casing.

THAT RUBBER FROM KELP.

WE mentioned in our issue of October, last the prospectus issued by the National Rubber Co. (not the company of Bristol, Rhode Island, but a Pacific Coast company) setting forth its expectations of producing much rubber, and incidentally of making a great deal of money from kelp. Their prospectus was not, on the face of it, one to promote enthusiasm among the initiated, but the company—which has since changed its name to the National Pacific Rubber Co.—has evidently progressed far enough to begin the equipment of a factory, for we read in the San Pedro, Cal., "News," of recent date, that the building formerly occupied by a canning company at Terminal is being equipped for the new rubber company. The paragraph proceeds as follows:

"The manager says they will manufacture some goods within thirty days. They will make crude rubber from kelp, also iodine, potash and fertilizer. They have big scows by means of which the kelp is gathered, one of which is rigged with a large cutter, similar to that of a mowing machine. The company expects to run three eight-hour shifts, and to consume sixty tons of kelp per day. They intend to put in vats, furnaces and driers. There is a good wharf attached to the mill, and therefore good facilities for shipping."

So manufacturers who have been waiting patiently for kelp-rubber need now wait no longer.

PIONEER PRINTERS ON RUBBER SURFACES.

J. C. Milne & Co., located at 244 Fourth avenue, New York City, inaugurated the process of printing patterns on rubber surfaces in England fifteen years ago. Three years ago Milne & Co. introduced the process into this country and are said to have developed a most satisfactory line of business in the domestic rubber trade.

The Essex Rubber Co. (Trenton, New Jersey) are sending out for a souvenir, a heart shaped eraser with the inscription on it, "Trenton, the heart of New Jersey. Famed for its great industries in clay, iron and rubber and its political freedom." It is an excellent bit of advertising.

NEW INCORPORATIONS.

ACTON TIRE REPAIR CO., May 13, 1912; under the laws of New York; authorized capital, $3,000. Incorporators: Patrick Curry, William Koopman and Lawrence Kerrigan, 759 Seventh avenue, New York. Location of principal office, New York.

Atlas Rubber Co., May 3, 1912; under the laws of Illinois; authorized capital, $2,000. Incorporators: Frank C. Rathje, 411 Roanoke building, Chicago, Illinois; F. W. Roepsterff, Jr., and John H. Hoglund. To manufacture rubber goods.

Dual Wheel Co., April 19, 1912; under the laws of New York; authorized capital, $300,000. Incorporators: Frederic B. Cochran, 81 Broadway, Alexander Dow, 104 West Forty-second street, and Cuthbert W. Jewell, 2 Rector street, all of New York. Location of principal office, New York. To manufacture wheels and other parts of motor trucks.

Eclipse Tire and Rubber Co., April 5, 1912; under the laws of New York; authorized capital, $50,000. Incorporators: Simon I. Schwartz, 347 Fifth avenue; H. Silverman, 256 West Ninety-seventh street, and A. Bloomberg, 5 Beekman street, all of New York. Location of factory, Jersey City, New Jersey. To manufacture tires.

Emery & Marshall Co., May 8, 1912; under the laws of Massachusetts; authorized capital, $75.000. Incorporators: Harry R. Emery, Sherman H. Marshall, both of Haverhill, Massachusetts, and Adolph A. Rosenbush, 135 Thorndike street, Brookline, Massachusetts. To manufacture, buy and sell boots, shoes and other kinds of footwear.

The B. F. Goodrich Co., May 2, 1912; under the laws of New York; authorized capital, $45,000,000. Incorporators: Bertram G. Work and Charles B. Raymond, both of Akron, Ohio, and David M. Goodrich, 25 Broad street, New York. Location of principal office, New York. To manufacture rubber goods, taking over The B. F. Goodrich Co., of New York and the B. F. Goodrich Co., of Ohio.

International Asbestos Co., May 1, 1912; under the laws of Wisconsin; authorized capital, $10,000. Incorporators: Fred J. Turgeon, Marie J. Turgeon and Edward J. Gottsacker.

Kingston Rubber Brush Co., May 9, 1912; under the laws of New York; authorized capital, $150,000. Incorporators: Walter H. Clarke, John M. Lester and Samuel Bernstein, all of Kingston, New York. Location of principal office, Kingston, New York.

Majestic Coat Co., April 20, 1912; under the laws of New York; authorized capital, $2,500. Incorporators: Solomon Gross, 404 Dumont street; Barnet Sherman, 1703 Park place, both of Brooklyn, New York, and Morris J. Fassler, 45 Willett street, New York. Location of principal office, New York. To manufacture raincoats, etc.

Never Puncture Tube and Tire Co., April 26, 1912; under the laws of Delaware; authorized capital, $1,500,000. Incorporators, E. E. McWhiney, William J. Maloney, and Norman P. Coffin, all of Wilmington, Delaware.

Polack Tyre and Rubber Co., May 3, 1912; under the laws of New York; authorized capital, $700,000. Incorporators: Max Polack, Adelbert Hanschild and Hugo Hoffstaedter, all of corner Broadway and Fifty-ninth street, New York. Location of principal office, New York.

Sewell Cushion Wheel Co., April 23, 1912; under the laws of Maine; authorized capital, $300,000. Incorporators: E. Maynard Thompson, Augusta, Maine, and I. S. Kearney. To manufacture, buy, sell and deal in rubber and other tires for automobiles, etc. Factory at Detroit, Michigan.

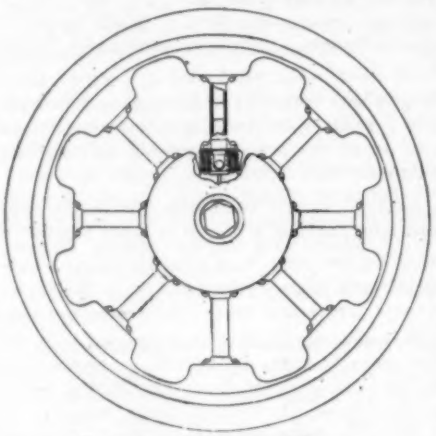
Trojan Rubber Co., April 18, 1912; under the laws of Connecticut; authorized capital, $50,000. Incorporators: Everett G. Hoffman, New Britain, Connecticut; Chas. F. Waterbury and E. H. Johnson, both of Stamford, Connecticut.

Western Rubber-Sales Company, May 9, 1912; under the laws of Wisconsin; authorized capital, $25,000. Incorporators: B. F. Crandall, Mary E. Lunn and T. P. Hardy.

AN AUTO WHEEL WITH SPRINGS.

THE Standard Resilient Wheel Co., 62 Reade street, New York, has been at work for some time on an automobile wheel in which the resiliency is to be provided by steel springs in place of pneumatic tires. The wheel is made entirely of steel but has a solid rubber tire. The resiliency, which it is claimed equals fully one inch (which is considerably in excess of the resiliency of the pneumatic tire) comes from the constant play when the car is in motion of 32 steel springs.

There are 8 hollow steel spokes, at each end of which are two steel springs. Connected with these springs is a piston which plays in the hollow spoke for about half its length. The accompanying cut shows two of these springs at the inner end of the spoke. There are two similar springs at the outer end where the spoke meets the rim. The wheel is so constructed that when the car is at rest the wheel is rigid, and none of the springs are extended; but when the car is in motion the springs yield to every obstacle and absorb the natural jar and jolt of rough roadways. Not only are the springs directly over the point of contact affected, but all the 32 springs are constantly at work contributing to the general resiliency of the wheel.



STANDARD RESILIENT WHEEL

The advantage claimed for this wheel is the avoidance of all trouble and annoyance, and the saving of about half the expense of the pneumatic tire; as with this wheel a solid rubber tire is good for twice the service that it would give on an ordinary wheel. While the first cost of this wheel is greater than that of the ordinary wheel, it is claimed that this extra cost will be more than balanced by the extra service of the first two tires used upon the wheel.

This Standard wheel has been given a great many tests in the vicinity of New York but on June 10 a Thomas car, equipped with four of these wheels, will start for Chicago and other points in the West on a six weeks' trying-out trip.

THE fire at the South Boston warehouse of the American Wax Co., which occurred on May 4, did not interfere with the ability of that company to make its usual deliveries. This was an extra warehouse, kept only to supply local rush orders and for export orders that could not wait for the regular sailings of Baltimore steamers. The company immediately secured the three buildings formerly occupied by the Farrington Co., in Jamaica Plain, which gives it twice the store area which it previously had and within a week's time it had a new supply on hand sufficient for any requirements.

Recent Patents Relating to Rubber.

UNITED STATES OF AMERICA.

ISSUED APRIL 2, 1912.

NO. 1,021,783. Wheel rim for pneumatic tires. C. G. Kleinschmidt, Herne, Germany.
1,021,816. Outer cover for pneumatic tires. J. C. Barker, Leeds, England.
1,021,891. Obstetrical pad. J. D. Robertson, Paducah, Ky.
1,021,983. Cushion tire. A. Hajos, Chattanooga, Tenn.
1,022,076. Stamping device. W. J. Grotenhuis, Chicago, Ill.
1,022,095. Garment. C. R. Leonard, New Rochelle, N. Y.
1,022,127. Tire. E. Dettelbach, Cleveland, Ohio.
1,022,141. Bottle, jar and the like and stopper therefor. D. Hurst and H. K. Bridger, London, England.
1,022,220. Resilient tire. G. S. Adams, Seaville, N. J., assignor to Eureka Double Resilient Tire Mfg. Co., Camden, N. J.
1,022,248. Golf ball. P. A. Martin, Birmingham, and J. Stanley, Sparkhill, near Birmingham, England.
1,022,289. Tire vulcanizing repair apparatus. C. F. Adamson, East Palestine, Ohio.
1,022,333. Armored tire. V. A. Rouilliard, Fall River, Mass.
1,022,338. Manufacture of isoprene. O. Silberrad, Buckhurst Hill, England.
1,022,339. Game apparatus. J. A. Sloan, Seattle, Wash.
1,022,369. Vehicle wheel. G. B. Lambert, New York.

Reissues.

13,393. Fabric and yarn therefor. A. de Laski, Weehawken, and P. D. Thropp, Trenton, N. J.

Trade Marks.

54,232. Boston Rubber Shoe Co., Boston, Mass. The word *Hub* (enclosed). For rubber boots and shoes.
54,233. Boston Rubber Shoe Co., Boston, Mass. The word *Hub*. For rubber boots and shoes.
56,709. W. T. Coleman, Boston, Mass. The word *Amax*. For compounding ingredient.
58,673. Federal Rubber Mfg. Co., Cudahy, Wis. The word *Federal*. For tires and accessories.
60,663. Lanman & Kemp, New York. Three *B's* in a diamond. For ice-bags, hot water bottles, etc.

ISSUED APRIL 9, 1912.

1,022,566. Rubber shoe. J. H. Roedding, Berlin, Ontario, Canada.
1,022,658. Tire guard. C. Dabelstein, Detroit, Mich.
1,022,689. Resilient tire. H. A. Meinhardt, Pittsfield, Mass.
1,022,735. Resilient tire. E. E. Hoff, San Rafael, Cal.
1,022,754. Spring wheel for vehicles. A. F. Priest, Chicago, Ill.
1,022,842. Detachable rim for resilient tires. J. W. Hall and C. Baynes, London, England.
1,022,856. Tire. F. Marinics, Expedit, Pa.
1,022,887. Wheel. H. O. Shockley, Darlington, Wis.
1,022,920. Brush. R. L. Anderson, Plant City, Fla.
1,022,966. Resilient tire. H. B. Montgomery, Harrisburg, Pa.
1,022,994. Waterproof boot. G. R. Wyman, assignor to C. S. Bird—both of East Walpole, Mass.
1,022,997. Diving suit. C. Anderson and M. Silver, Passi, Philippine Islands.
1,023,010. Spring wheel. H. E. J. Foerster, St. Louis, Mo.
1,023,098. Spring wheel. L. Schilling, Maeystown, Ill.

Trade Marks.

60,308. The Star Rubber Co., Akron, Ohio. Black star with letters *R Co* intertwined with *S*. For chair tips.
60,309. The Star Rubber Co., Akron, Ohio. Black star with letters *R Co* intertwined with *S*. For tobacco pouches.
60,519. Barrett Manufacturing Co., New York. The word *Carbosota*. For coal-tar oils.

ISSUED APRIL 16, 1912.

1,023,142. Fuse. H. E. Ellsworth, assignor to The Ensign-Bickford Co.—both of Simsbury, Conn.
1,023,344. Elastic tire for vehicle wheels. C. F. Waldman, Los Angeles, Cal.
1,023,358. Face mask. L. M. Bender, Seattle, Wash.
1,023,380. Aquatic life-preserver. E. V. Henderson, Leavenworth, Kan.
1,023,398. Fabric coating machine. W. Salisbury, Stoughton, Mass.
1,023,414. Armor for vehicle tires. J. B. Coonrod, Rock Rapids, Iowa.
1,023,416. Resilient wheel. D. L. Crosbie, Sacramento, Cal.
1,023,454. Pneumatic tire for vehicle wheels. E. E. Black, Detroit, Mich.
1,023,497. Resilient vehicle wheel. F. H. Beamer, Buffalo, N. Y.
1,023,508. Decorating machine. E. Delafond, Mexico, Mexico.
1,023,516. Pneumatic wheel. W. W. Guest, Alameda, Cal.
1,023,554. Tire. M. E. Davis, Canastota, N. Y.
1,023,574. Car wheel. F. Linblad, New York.
1,023,580. Antiskid device. D. J. Martin, New York.
1,023,581. Swimming mitt or glove. T. L. Monaghan, New York.
1,023,666. Cover for pneumatic tires. L. Lias, Paris, France.
1,023,672. Nursing bottle attachment. G. Moran, Thomaston, Me.
1,023,693. Infant pacifier. J. Walsh and R. D. Kay, London, England.
1,023,712. Tire for vehicle wheels. J. Balazs, Michel, British Columbia, Canada.
1,023,727. Vulcanizer. C. C. Evans, Minneapolis, Minn.
1,023,728. Pneumatic tube for vehicle and other wheels. C. D. Galvin, Merchantville, N. J.
1,023,729. Manufacture, molding and remolding of india-rubber goods. T. Gare, New Brighton, England.
1,023,733. Vehicle tire. J. E. Goodman and E. S. Ruff, Stockton, Cal.
1,023,770. Spring tire. Emanuel Steimle, Salt Lake City, Utah.
1,023,779. Vehicle tire. S. T. Allen, assignor to Triplex Tire Co.—both of Detroit, Mich.

Trade Marks.

61,437. C. A. Daniel, Philadelphia, Pa. Portrait of a Quaker in letter *Q*. For rubber and pneumatic tires.

ISSUED APRIL 23, 1912.

1,023,904. Ball. H. R. Wemple, Elizabeth, N. J.
1,024,040. Fabric constructed of laminated cohesive interwound members. L. A. Subers, Cleveland, Ohio.
1,024,042. Elastic tire. A. W. Torkington, Purley, England.
1,024,078. Tire repair device. C. F. Jenkins, Washington, D. C.
1,024,090. Elastic tire. T. B. Marchant, A. G. Marchant and G. P. Marchant, London, England.
1,024,152. Method and means for producing dental plates. H. J. Smith, assignor to H. D. Justi & Son—both of Philadelphia, Pa.
1,024,153. Dental plate. H. J. Smith, assignor to H. D. Justi & Son—both of Philadelphia, Pa.
1,024,154. Vehicle wheel. R. T. Smith, Warrington, England.
1,024,189. Rubber tire for vehicles. A. Dow, New York.
1,024,206. Elastic webbing and method in weaving the same. W. Kops, New York.
1,024,207. Elastic fabric. W. Kops, New York.
1,024,227. Carter wheel. I. Rocic, Hoboken, N. J.
1,024,336. Resilient tire. N. Harris, Indianapolis, Ind.
1,024,382. Tire for automobiles. O. H. Weckesser, Ross township, Allegheny county, Pa.
1,024,431. Vehicle tire. T. H. Banks, San Antonio, Tex.
1,024,458. Tire protector. J. Savoie, Central Falls, R. I.

Design.

42,423. Elastic tire for vehicles. W. F. Pfeiffer, assignor to The Miller Rubber Co.—both of Akron, Ohio.

Trade Marks.

52,892. Detroit Insulated Wire Co., Detroit, Mich. The words *"Detroit" Rubber Covered Wires* in a block. For insulated electric wires.
54,548. Boston Rubber Shoe Co., Boston, Mass. The word *Trojan*. For rubber boots and shoes, etc.
59,235. Morris Rosenthal, Buffalo, N. Y. The letters *N O A L* in a divided circle. For rubber tires.
59,777. The Brown Shoe Co., St. Louis, Mo. The word *Mother's*. For women's rubber shoes.
61,349. Wright & Ditson, Jersey City, N. J. Portrait of a baby. For golf balls.

ISSUED APRIL 30, 1912.

1,024,506. Combination of reflecting means for enabling one to see the back of the head or neck. G. E. Graham, Candor, N. Y.
1,024,528. Tension mechanism for looms. E. W. Sibley, Chelsea, Mass.
1,024,563. Hat pin protector. E. B. Eckhart, Philadelphia, Pa.
1,024,604. Hose making machine. S. J. Sill, Buffalo, N. Y.
1,024,746. Demountable wheel rim. H. H. Replogle, Montreal, Quebec, Canada.
1,024,753. Resilient tire. J. Thissen, Kane, Pa.
1,024,847. Teat cup. A. Gillies, Heidelberg, Victoria, Australia, assignor to D. H. Burrell & Co., Little Falls, N. Y.
1,024,936. Apparatus for use in reclaiming vulcanized rubber waste. C. S. Heller, assignor to Moore Architectural and Engineering Co.—both of Akron, Ohio.
1,024,937. Process for reclaiming vulcanized rubber waste. C. S. Heller, assignor to Moore Architectural and Engineering Co.—both of Akron, Ohio.
1,025,000. Tire filling compound and process involving the same. H. I. Manley, Kansas City, Mo.

1,025,012. Water bag retainer. E. R. Norwood, San Francisco.
1,025,072. Spring cushioned tire for vehicle wheels. W. W. Lower, Tyrone, Pa.
1,025,080. Spring wheel. C. Coughlin, Jersey City, N. J.
1,025,100. Puncture alarm. F. D. Schneider, Bedford, Ohio.

Design.

42,435. Facial massage device. J. L. Erskine, Upper Montclair, N. J.

Trade Marks.

40,898. Schacht & Co., Goshen, Ind. The words *Daisy S & Co.* written around a woman's portrait. For stoppers, etc.
58,869. C. Kenyon Co., Brooklyn, N. Y. The word *Kenreign.* For hats, shoes, etc., made of rubber.

[NOTE.—Printed copies of specifications of United States patents may be obtained from THE INDIA RUBBER WORLD office at 10 cents each, postpaid.]

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the application, which in the case of these listed below was in 1910 and 1911.

**Denotes Patents for American Inventions.*

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, APRIL 3, 1912.]

28,535 (1910). Tire attachments to rims. H. Brook, 193 Church street, Blackpool.
28,547 (1910). Inflating pumps. E. A. Gormly, Hoylake, Cheshire.
28,709 (1910). Vehicle springs. F. Walton, 114 Holborn, London.
28,720 (1910). Improvements in vacuum cleaning apparatus. T. H. White, Pendleton, Salford.
28,721 (1910). Ejectors for vacuum cleaning apparatus. T. H. White, Pendleton, Salford.
28,734 (1910). Levels for aeroplanes. W. MacAlpine, Dennistoun, Glasgow.
28,756 (1910). Guides for traveling belts. Fraser & Chalmers, London, and C. H. Marshall, Belvedere, Kent.
28,789 (1910). Metal sheets covered with rubber. W. Thompson, Brookville, Wexford.
28,792 (1910). Detachable tread bands for tires. C. Wilk, Erlinghausen, Westphalia, and J. Igel, Borntosten, Brilon—both in Germany.
28,805 (1910). Tire inflators. A. R. Price, 45a St. Paul's Square, Birmingham.
28,832 (1910). Tubes for tire inflators. J. D. Rowland, and Warne, Wright & Rowland, 56 Watery Lane, Birmingham.
28,834 (1910). Elastic composition containing mineral rubber. H. P. Rasmussen, St. Kilda, Dunedin, New Zealand.
*28,869 (1910). Wheel cushions with rubber balls. H. R. Ellis, Salt Lake City, Utah, U. S. A.
29,081 (1910). Pipe joints. W. Kuhn, 166 Kettenhofweg, and Pokorny & Wittekind, Maschinenbau, A. G. 54 Kreuznacherstrasse—both in Frankfurt-on-Main, Germany.
*29,083 (1910). Deformity appliances. W. F. Connell, 16 Court street, Brooklyn, N. Y., U. S. A.
29,162 (1910). Waterproof insoles. L. Loewenthal and W. D. Poole, 2 Dod street, Limehouse, London.
29,164 (1910). Rubber tapping tools. F. A. G. Pape, 49 Fenchurch street, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, APRIL 11, 1912.]

29,204 (1910). Clips for jointing metal and rubber tubes. C. F. Monk and J. H. Chivers, 37 Alexandra Road, St. John's Wood, London.
29,207 (1910). Rubber strips in cricket bats. H. J. Gradidge, 36 Artillery Place, Woolwich, Kent.
29,285 (1910). Improvements in vacuum cleaning apparatus. C. J. Harvey and Harvey Pneumatic Cleaners Co., Kidderminster.
29,301 (1910). Coating for tire casing. C. A. Owen, Norfolk House, Laurence Pountney Hill, London.
29,361 (1910). Insertion of rubber in heel ends of boots and shoes. I. S. Daniels, 5 Market street, Finsbury, London.
*29,392 (1910). Improvements in tread bands. P. T. Hamm, 424 Forty-first street, Brooklyn, N. Y., U. S. A.
*29,393 (1910). Improvements in tread bands. P. T. Hamm, 424 Forty-first street, Brooklyn, N. Y., U. S. A.
*29,394 (1910). Improvements in tread bands. R. N. Evans, 189 Ralph street, and P. T. Hamm, 424 Forty-first street—both in Brooklyn, N. Y., U. S. A.
29,402 (1910). Rubber rings for feeding bottles. J. Craven, Lane End, Thornton, near Bradford, Yorkshire.
29,435 (1910). Pneumatic tire covers. W. Robins, 108 Elgin Crescent, Notting Hill, London.
29,475 (1910). Rubber block tires. T. W. Baker, 7 Broad street House, London.
29,481 (1910). Tires with alternating rubber cores. Polack Akt. Ges., B. Waltershausen, Thuringia, Germany.
29,483 (1910). Non-metallic elastic tire bodies. H. Forster, 73 Alderney street, London.
29,518 (1910). Rubber washers in fire extinguishers. A. E. L. Hepton, Hunslet Lane, Leeds.
*29,595 (1910). Rubber handles in dental appliances. H. T. Martin, 452 East Twenty-second street, and J. F. Golden, 436 East North avenue—both in Baltimore, Md., U. S. A.
29,614 (1910). Rubber rings in engine packing. J. Walker, Lion Works, Poplar, London.
29,689 (1910). Block tires. V. M. Grapin, 4 Avenue du Petit Marly, Argenteuil, Seine et Oise, France.
29,713 (1910). Improvements in horseshoe calks. J. Kolesza, 43 Gleditschstrasse, Berlin, and O. Zimmermann, 61 Koenigsweg, Charlottenburg, near Berlin.
29,735 (1910). Printing in colors by rubber-faced hand stamps. J. W. Pickstone, Brook Road, Fallowfield, Manchester.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, APRIL 17, 1912.]

636 (1910). (Under appeal.) Plastic compositions resembling rubber. L. Lilienfeld, 1 Zeitgasse, Vienna.
21,588 (1910). (Redated.) Improvement in animal shoes. W. T. York, Henton, near Wells.
29,771 (1910). Air compressors. W. Evans, 7 Gloucester Place, St. Pauls, and Brecknell, Munro & Rogers—both in Bristol.
*29,783 (1910). Detachable wheel rims. G. B. Lambert, 777 Madison avenue, New York, U. S. A.
29,796 (1910). Tamping device for mines. F. Trippe, 61 Arndtstrasse, Dortmund, Germany.
29,800 (1910). Improvements in tread bands. S. Willoughby, 346 St. John's street, Clerkenwell, and G. J. Mooy, 59 Regina Road, Tollington Park—both in London.
29,858 (1910). Rubber washers in pipe joints. W. Beal, Ltd., Hill street, Birmingham, and A. Beard, 36 Florence Road, Handsworth, Staffordshire.
29,969 (1910). Rubber pads on steamer chairs. F. J. Gay, 83 Grove Lane, Camberwell, London.
29,988 (1910). Blocks on cycle footboards. H. W. Turner, Brougham street, Blackfriars Road, Manchester.
30,005 (1910). Rubber rings in cow milkers. A. Gillies, Banksia street, Heidelberg, Victoria, Australia.
30,009 (1910). Improvements in motorcycle belts. Dunlop Rubber Co. and J. V. Worthington, Manor Mills, Birmingham.
30,085 (1910). Rubber disks in vacuum cleaning apparatus. W. G. Hay, 41 Clifton Road, Tuebrook, Liverpool, and G. Buckley, "Norwood," Blackpool.
30,134 (1910). Rubber washers in syphon bottles. J. B. Vernay, 46 Rue des Ecoles, Paris.
*30,207 (1910). Air tubes for tires. J. MacDonnell, 47 Jasper street, Haverhill, Mass., U. S. A.
*30,226 (1910). Rubber treads in block tires. W. Budesheim and J. D. Stinchcomb, 1223 Park avenue, Baltimore, Md., U. S. A.
30,234 (1910). Covers for pneumatic tire treads. E. Nathan, Place des Dames, Cognac, France.
30,239 (1910). Rubber lining for jar taps. T. Morgan, 4 High street, Treorchy, Glamorganshire.
30,250 (1910). Rubber treads for vehicle tires. G. T. Moore, 1 Foster Place, Dublin.
30,257 (1910). Rubber cores in surgical trusses. M. Auty, Broomer street, and J. Atkinson, Church street—both in Ravensthorpe, near Dewsbury.
30,265 (1910). Rubber pads for massage. Bichara de Paris, Ltd., 170 Piccadilly, London, and N. Maclaren, 122 Beckenham Road, Beckenham, Kent.
30,274 (1910). Elastic washers for locking objects on rods. A. H. J. Mónager, 11 bis Rue de Fontenelle, Rouen, France.
30,294 (1910). Floating toys. J. Kohnstam, 24 Milton street, London.
30,306 (1910). Rubber in dies for spinning artificial silk. G. S. Guadagni, S. Pietro in Verzolo, Pavia, Italy.
30,308 (1910). Improvements in railway couplings. A. Lanzdorf, 1 Leyserstrasse, Vienna.
30,371 (1910). Balls in cushioning devices. A. Meier, 9 Goldschmidgasse, Vienna.
30,403 (1910). Rubber flooring surfaces. R. Warwick, 72 Field Road, Forest Gate, London.

[ABSTRACTED IN THE ILLUSTRATED OFFICIAL JOURNAL, APRIL 24, 1912.]

3 (1911). Hand screens for cyclists. F. Parker, 55 Cavendish Road, Clapham, London.
10 (1911). Improvements in tread bands. W. T. G. Ellis, 150 Bothwell street, Glasgow.
20 (1911). Coagulation of rubber. W. Clarkson, Friars Park, Lesmahagow, Scotland.
26 (1911). Solid rubber tires. T. Whitehead, Bela Grove, Blackpool, Lancashire.
27 (1911). Tubes for motor car horns. C. H. Worsnop, 17 Savile Park Road, Halifax.
52 (1911). Composition for closing tire punctures. B. L. Watkinson, 39 Earl's Court Road, London.
74 (1911). Rubber cylinders for vehicle wheels. Itala Fabrica Di Automobili, Turin, Italy.
133 (1911). Rubber rings in sugar purifiers. E. Bébien, 16 Place de la Republique, Paris.
148 (1911). Elastic portion in hat bands. B. W. G. Braddy and T. D. Turner, 6 Aldermanbury avenue, London.
170 (1911). Rattling preventing devices for doors. Snutsel Freres, 87 Rue du Page, Brussels.
171 (1911). Rubber mud guards for cycles. G. T. Biggs, 91 York Road, Forest Gate, London.
176 (1911). Insulating compositions containing reclaimed rubber. British Thomson-Houston Co., London.
180 (1911). Rubber blocks in tires. R. & S. Basch, 10 First avenue, Hove, Sussex.
*209 (1911). Rubbered canvas casings for pneumatic cushions. W. J. Straight, 6610 Jackson avenue, Chicago, Ill., U. S. A.
219 (1911). Rubber bushing for engine turning gear. G. C. Goodhart, Willows, Inkpen, Berkshire.
265 (1911). Improvements in driving belts for motor road vehicles. F. W. Barnes, Claremont Road, Surbiton, Surrey.
375 (1911). Waterproof cover for cycle seats, etc. O. B. Geake, 48 Dudley Road, Tunbridge, Wells, Kent.

THE FRENCH REPUBLIC.

PATENTS ISSUED (with Dates of Application).

434,767 (October 2, 1911). C. Kioque. Anti-skid device.
434,841 (September 30). Moore Architectural & Engineering Co. Recovery of rubber from waste.
434,875 (September 29). J. F. Casteran. Air chamber for elastic tires.
434,897 (October 4). W. W. Wiggins. Vehicle tire.
434,904 (December 9, 1910). C. Morel. Elastic tire for road vehicles.
434,911 (December 10). P. Mercier. Pneumatic tire for automobiles, cycles and other vehicles.
434,930 (October 2, 1911). M. L. Coste. Pneumatic elastic wheel for automobiles and other vehicles.
434,960 (October 6). C. Mercanton. Anti-skid protector for elastic tires.
434,987 (October 7). D. Ponchaur. Protective cover for pneumatic tires.
434,989 (October 7). Farbenfabriken Company (formerly F. Bayer & Co.). Process for production of substances resembling rubber.
435,076 (October 9). Farbenfabriken Company (formerly F. Bayer & Co.). Process for the production of rubber, its homologues and analogues.
435,185 (October 9). H. B. Montgomery. Elastic tire for vehicle wheels.
435,383 (December 22, 1910). Etablissements Bergougnan. Process and apparatus for the vulcanization with heat of pneumatic anti-skid covers, with leather bands.
435,460 (October 20, 1911). Coir Tire Co., Ltd. Process and apparatus for the manufacture of elastic tires.
435,479 (October 4). Doty & Shaw. Improvements in elastic tires.
435,494 (October 16). The Snap-on Tire Chain Co. Anti-skid device for automobile wheels.
435,516 (October 20). A. B. Heimbach. Appliance for fixing movable rubber heels on shoes.
435,558 (October 23). Eperjesy, Bajusz & Baranyi. Protective cover for elastic tires.
435,564 (October 23). Vereinigte Schwarzfarben & Chemische Werke Aktiengesellschaft. Process and machine for fixing anti-skid rivets in rubber tires and protective covers.
435,607 (October 24). F. Knipp. Movable rubber sole for house boots, slippers and similar footwear.
435,623 (October 25). M. Larmet. Divided pneumatic tire for automobiles.

[NOTE.—Printed copies of specifications of French patents can be obtained from R. Bobet, Ingénieur-Conseil, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

THE GERMAN EMPIRE.

PATENTS ISSUED (with dates of validity).

246,653 (from November 14, 1909). British Murac Syndicate, Ltd., and M. M. Dessau, London. Machine for washing rubber, gutta percha, balata and like substances.
246,443 (from January 11, 1910). Dr. Leon Lilienfeld, Vienna. Process for the manufacture of plastic masses.
246,768 (from February 17, 1911). W. Butterfield and T. A. Jones, Cardiff, England. Tires composed of blocks of rubber with intervening sections of steel.
246,895 (from March 19, 1911). Gaston Rose, Paris. Apparatus for the vulcanization or repair of rubber tires.
247,217 (from May 7, 1911). A. Olier & Co., Clermont-Ferrand, France. Apparatus for vulcanizing protective covers of pneumatic tires.

THE KINGDOM OF BELGIUM.

PATENTS PUBLISHED.

242,530 (1912). Farbenfabriken, vorm. F. Bayer & Co., Elberfeld, Germany. Process for the production of erythrene and isoprene.
242,556 (1912). Farbenfabriken, vorm. F. Bayer & Co., Elberfeld, Germany. Process for the production of erythrene and isoprene.
242,441 (1912). H. Debaug, Avenue Montaigne, 32, Paris. Process and apparatus for the purification by osmosis of natural and regenerated rubber, and of other colloidal substances in a state of dissolution.

THE GREAT AMERICAN AIR CIRCUIT NEXT FALL.

AERIAL circuit races have been held in France, Germany and Great Britain with much acclaim and great success, particularly in France; but the Aero Club of America, with the assistance of various western clubs expects to hold a great international circuit in this country, next September, that will be more important in many ways than any of those held abroad. In the first place, it will be about 700 miles longer, as the proposed route is 1,810 miles. Then the prizes will aggregate about $100,000, including the grand prize of $25,000.

The international race for the Gordon-Bennett Aviation Trophy will take place near Chicago early in September, and this will bring to our shores practically all the noted flyers of the world. This 1,800-mile international circuit will be held immediately thereafter, so that the same contestants can take part in both events. The circuit will start at Chicago, go northwest to Milwaukee, thence southwesterly through Cedar Rapids and Des Moines to Omaha, thence southeast to Kansas City, and east through Jefferson City, St. Louis, and Indianapolis to Cincinnati; thence it will turn in a northerly direction and go through Columbus and Cleveland; thence west to Toledo, north to Detroit, and west again back to Chicago. The aero clubs of Illinois, Michigan, Milwaukee, Kansas City, St. Louis, Indiana, Cincinnati and Chicago will coöperate with the Aero Club of America.

The circuit will be divided into sections with intermediate controls. Each section will end at a large city where aviators will stop overnight. As aviators will be arriving at various hours one day and leaving the next, each city will practically have two full days of flying. Stops will be made also at intermediate cities, where there will be a "control" or station where aviators will land and stop for a limited time.

The circuit is to be open to licensed pilots of all nationalities who will be free from injunction under the Wright patents, arrangement having been made with the Wright Company to this effect.

Among the prizes proposed to be given are: For first and second machines to reach the end of each section; for the American built and flown machine first to complete the circuit; for minimum horse power required to complete the course; first to complete course with a passenger; best wireless demonstrations; greatest number of wireless messages delivered; best maps and topographical descriptions, drawn en route; first aeroplane fitted with automatic stabilizer to complete the circuit; most completely equipped machine to complete circuit; the machine completing the circuit having intact most of its officially stamped parts.

In drawing the regulations to govern this event, the committee in charge will endeavor to make it a conclusive test of everything that goes to make aeroplaning practicable. The program outlined above shows that the circuit will include many useful and interesting features never before embraced in a similar event. Especial efforts will be made to bring out the various qualities of the aeroplane which are of practical use.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of india-rubber and gutta-percha for the month of March, 1912, and the first nine months of five fiscal years, beginning July 1:

MONTHS.	Belting, Packing and Hose.	Boots and Shoes.	All Other Rubber.	TOTAL.
March, 1912	$219,274	$93,247	$690,822	$1,003,343
July-February	1,491,121	1,139,181	4,640,177	7,270,479
Total, 1911-12.....	$1,710,395	$1,232,428	$5,330,999	$8,273,822
Total, 1910-11.....	1,511,975	1,801,977	4,485,644	7,789,496
Total, 1909-10.....	1,416,655	1,499,770	3,510,618	6,427,043
Total, 1908-09.....	1,053,758	1,071,489	2,805,914	4,931,161
Total, 1907-08.....	1,040,985	1,342,965	2,802,371	5,186,321

The above heading "All Other Rubber," for the month of March, 1912, and for the first nine months of two fiscal years, beginning July 1, includes the following details relating to tires:

MONTHS.	For Automobiles.	All Other.	TOTAL.
March, 1912 .....*values*	$228,098	$44,548	$272,646
July-February	1,641,373	349,372	1,990,745
Total, 1911-12	$1,869,471	$393,920	$2,263,391
Total, 1910-11	$1,325,903	$411,801	$1,737,704

SEND for Index (free) to Mr. Pearson's "Crude Rubber and Compounding Ingredients."

Review of the Crude Rubber Market.

WHILE the month of April was chiefly noticeable for the reaction in the London price of fine Pará from the relatively high level of 5*s.* 2*d.* on March 27 to 4*s.* 8½*d.* on April 27, the market during May varied but little from the lower basis thus established. An evident desire was manifest on the part of both sellers and buyers to await developments. Prices ranged during the month between 4*s.* 8*d.* and 4*s.* 7¼*d.*, standing at time of writing (27) at 4*s.* 7½*d.*

Those inclined to take an optimistic view of the situation gave prominence to the fact that the visible supply of all kinds of rubber on April 30 was only 10,883 tons, as compared with 14,703 tons at the end of April, 1911. Separate figures showed Pará grades 7,608 tons against 11,863 tons last year, and other grades 3,275 tons against 2,840 tons in 1911; the reduction having thus been practically in Pará grades. The fact that 5,253 tons of plantation rubber had passed through the London auctions during the first four months of 1912, as compared with 3,175 for the corresponding period of 1911, was regarded as indicating the influence of a large and increasing consumption.

Notwithstanding these favorable statistical conditions, the evident decision of consumers to more or less use up their holdings of rubber before entering the market again, caused the bidding at the London auction of May 14 to be noticeably lacking in spirit. As a result, however, of importers meeting these conditions, the 635 tons offered were all placed. The later prices were better than those current at the opening of the sale, but the average fall was about 1¼*d.* per pound. Owing to the Whitsuntide holidays occurring during the last week in May the second May sale amounting to 350 tons took place on 21st. Cable reports indicate that 135 tons were sold at an average fall of ½*d.* to 1*d.* per pound.

Following the lead of London, the New York market was quiet throughout the month. The movements of consumption are being closely watched, as indicating the future tendency of the market.

The subjoined quotations for African and some other varieties are to a great extent nominal, owing to the lack of assortment displayed by existing stocks.

Demand was fairly good at the Rotterdam sale, of 3rd; prices only giving way slightly, owing to the firmness of holders. Prices at the later continental auctions fell in sympathy with London movements. At Amsterdam on 10th, 19 tons (principally *Hevea*) were sold at an average of 8½ per cent. below the nominal valuations.

On 22nd, 107 tons Congo were sold at the Antwerp sales, with a reduction equaling about 2*d.* per pound. Cable advices of the Havre sale of 23rd report a fall, in harmony with the features of the other recent continental auctions.

NEW YORK QUOTATIONS.

FOLLOWING are the quotations at New York for Pará grades, one year ago, one month ago and May 29—the current date.

PARA.	June 1, '11.	May 1, '12.	May 29, '12.
Islands, fine, new	96@ 97	110@111	105@106
Islands, fine, old	98@100	112@113	107@108
Upriver, fine, new	99@100	112@113	109@110
Upriver, fine, old	105@106	115@116	112@113
Islands, coarse, new	58@ 59	63@ 64	57@ 58
Islands, coarse, old			
Upriver, coarse, new	82@ 83	93@ 94	89@ 90
Upriver, coarse, old	84@ 85		
Cametá	84@ 85	67@ 68	65@ 66
Caucho (Peruvian) ball	66@ 67	93@ 94	87@ 88
Caucho (Peruvian) sheet	66@ 67		
PLANTATION PARA.			
Fine smoked sheet		126@127	118@119
Fine pale crepe	114@115	125@126	119@120
Fine sheets and biscuits		119@120	114@115
CENTRALS.			
Esmeralda, sausage	78@ 79	92@ 93	82@ 83
Guayaquil, strip			
Nicaragua, scrap	77@ 78	91@ 92	80@ 81
Panama			
Mexican, scrap	77@ 78	91@ 92	81@ 82
Mexican, slab			
Mangabeira, sheet			
Guayule	48@ 49		55@ 56
Balata, sheet		85@ 86	89@ 90
Balata, block			55@ 56
AFRICAN.			
Lopori ball, prime	95@ 96		
Lopori, strip, prime			
Aruwimi	94@ 95		
Upper Congo, ball, red	95@ 96		107@108
Ikelemba			
Sierra Leone, 1st quality	85@ 86		94@ 95
Massai, red	85@ 86		95@ 96
Soudan, Niggers			
Cameroon, ball	56@ 57		66@ 67
Benguela	65@ 66		
Madagascar, pinky	77@ 78		
Accra, flake	27@ 28		27@ 28

Africans are neglected owing to low prices ruling for Pará.

EAST INDIAN.			
Assam	83@ 84		
Pontianak	6@6⅛		5⅞@5¾
Borneo			

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine	4$550	Upriver, coarse	4$350
Islands, coarse	2$400	Upriver, fine	5$650
		Exchange	16 3/16d.

Latest Manáos advices:

Upriver, fine	5$450	Exchange	16 3/16d.
Upriver, coarse	4$050		

New York.

In regard to the financial situation, Albert B. Beers (broker in crude rubber and commercial paper, No. 68 William street, New York) advises as follows:

"The money market in regard to commercial paper has varied but little in May from the conditions prevailing for the past three months, there being still a good demand for the best rubber names at 4½@ 5 per cent., and 5½@6 per cent. for those not so well known.

PRICES FOR APRIL (NEW RUBBER).

	1912.	1911.	1910.
Upriver, fine	$1.12@1.18	$1.18@1.45	$2.58@2.92
Upriver, coarse	.92@ .96	.88@1.10	1.70@1.87
Islands, fine	1.10@1.14	1.12@1.35	2.45@2.78
Islands, coarse	.63@ .66	.60@ .63	1.07@1.15
Cametá	.66@ .70	.75@ .80	1.28@1.35

African Rubbers.

NEW YORK STOCKS (IN TONS).

April 1, 1911	98	November 1, 1911	45
May 1	98	December 1	60
June 1	90	January 1, 1912	58
July 1	90	February 1	150
August 1	90	March 1	90
September 1	112	April 1	80
October 1	67	May 1	62

Statistics of Para Rubber (Excluding Caucho).

	NEW YORK.				
	Fine and Medium.	Coarse.	Total 1912.	Total 1911.	Total 1910.
Stocks, March 31...*tons*	99	11 =	110	396	280
Arrivals, April	1,183	512 =	1,695	663	536
Aggregating	1,282	523 =	1,805	1,059	816
Deliveries, April	1,005	487 =	1,492	498	673
Stocks, April 30.....	277	36 =	313	561	143

	PARA.			ENGLAND.		
	1912.	1911.	1910.	1912.	1911.	1910.
Stocks, March 31....*tons*	2,205	3,630	835	540	1,865	540
Arrivals, April	2,730	2,520	2,210	830	1,203	2,408
Aggregating	4,935	6,150	3,045	1,370	3,068	2,948
Deliveries, April	2,165	1,990	2,785	380	1,598	1,848
Stocks, April 30.....	2,770	4,160	260	990	1,470	1,100

	1912.	1911.	1910.
World's visible supply, April 30.....*tons*	4,982	7,069	3,058
Pará receipts, July 1 to April 30.....	27,970	27,190	29,230
Pará receipts of caucho, same dates.....	5,680	5,930	6,530
Afloat from Pará to United States, April 30	334	283	125
Afloat from Pará to Europe, April 30....	575	595	1,430

Rubber Stock at Para.

Stock for January 31 showed an increase caused by heavier arrivals, while that of February 29 shows a slight decrease. The stock of March 31 displayed a further reduction, while that of April 30 was about the same as a month earlier.

January 31, 1911....*tons*	2,085	September 30, 1911..*tons*	3,102
February 28	3,787	October 31	3,320
March 31	4,214	November 30	3,050
April 30	5,104	December 31	2,675
May 31	5,350	January 31, 1912	3,370
June 30	4,545	February 29	3,240
July 31	3,884	March 31	2,730
August 31	3,450	April 30	2,770

Rubber Receipts at Manaos.

DURING April and ten months of the crop season, for three years (courtesy of Messrs. Scholz & Co.):

	April.			July-April.		
FROM—	1912.	1911.	1910.	1911-12.	1910-11.	1909-10.
Rio Purûs-Acre .....*tons*	251	457	376	8,758	9,517	9,481
Rio Madeira	373	288	269	3,653	2,984	3,328
Rio Juruá	645	400	463	3,679	3,798	4,083
Rio Javary-Iquitos	144	186	38	2,243	2,233	2,570
Rio Solimões	133	57	70	1,195	1,192	1,166
Rio Negro	199	126	40	621	494	584
Total	1,740	1,514	1,256	20,149	20,218	21,213
Caucho	974	889	1,022	4,443	4,532	6,209
Total	2,714	2,403	2,278	24,592	24,750	27,422

Rubber Scrap Prices.

LATE NEW YORK QUOTATIONS.—Prices paid by consumers for carload lots, per pound—are in some cases slightly lower.

	June 1.
Old rubber boots and shoes—domestic.....	9¼@ 9⅜
Old rubber boots and shoes—foreign	9 @ 9⅛
Pneumatic bicycle tires	4½@ 4¾
Automobile tires	9 @ 9¼
Solid rubber wagon and carriage tires	9¼@ 9¾
White trimmed rubber	11 @11½
Heavy black rubber	4¾@ 5
Air brake hose	5⅛@ 5¼
Garden hose	1½@ 1⅝
Fire and large hose	2⅛@ 2¼
Matting	⅞@ 1

WEEKLY MOVEMENT OF LONDON PRICES.

[IN SHILLINGS AND PENCE PER POUND.]

July 7, 1911	4/2½	December 22, 1911	4/4
July 14	4/5½	December 29	4/3½
July 21	4/7	January 5, 1912	4/4½
July 28	4/8	January 12	4/5½
August 4	4/7½	January 19	4/5½
August 11	4/7½	January 26	4/8
August 18	4/7½	February 2	4/7
August 25	4/10½	February 9	4/6½
September 1	4/8½	February 16	4/6¾
September 8	4/9	February 23	4/7½
September 15	5/	March 1	4/7½
September 22	4/10½	March 8	4/9
September 29	4/8	March 15	4/10½
October 6	4/7	March 22	5/1½
October 13	4/5	March 29	4/11½
October 20	4/6½	April 5	4/11
October 27	4/4	April 12	4/11
November 3	4/3	April 19	4/10¼
November 10	4/4½	April 25	4/9
November 17	4/3	May 3	4/7½
November 24	4/3½	May 10	4/7½
December 1	4/4½	May 17	4/7¾
December 8	4/5½	May 24	4/7½
December 15	4/4½		

Liverpool.

WILLIAM WRIGHT & CO. REPORT [MAY 1]:

Fine Pará.—The demand throughout the month has been dull; prices, after advancing to 5*s.* 0½*d.* [= $1.23], have since declined to 4*s.* 7½*d.* [= $1.125]. For the present, the demand from America has subsided, which is not surprising after the recent heavy purchases; shipments from here during the month are about 450 tons, and European manufacturers have adopted a waiting policy. Should a further decline take place a resumption of the demand is quite probable. Closing value: Hard Fine, 4*s.* 7½*d.* [=$1.125]; Island, 4*s.* 7½*d.* [= $1.125.]

Amsterdam

JOOSTEN & JANSSEN report [May 10]:

As might be expected the prices paid in today's sale showed an average decline of about 8½ per cent. on valuations, which were based on 5*s.* 2½*d.* for first latex crepe and 4*s.* 10*d.* for hard fine Pará. In spite of the relatively unsettled state of the market there was a very strong demand at the sale and all of the 19,000 kilos offered was sold, with the exception of 735 kilos gutta-percha. The average decline on the various descriptions was about 9 per cent. on Heveas, 5 per cent. on Ramburgs and 6 per cent. on Castilloas.

The next sale will take place on June 2.

IMPORTS FROM PARA AT NEW YORK.

[*The Figures Indicate Weight in Pounds.*]

MAY 5.—By the steamer *Denis*, from Manáos and Pará:

	Fine.	Medium.	Coarse.	Caucho.	TOTAL.
Arnold & Zeiss.....	66,700	43,000	179,500	123,700=	412,900
New York Commercial Co...	55,600	25,000	62,900	45,600=	189,100
Henderson & Korn.....	90,600	13,100	28,700	7,800=	140,200
Meyer & Brown.....	44,600	21,100	31,900	400=	98,000
Robinson & Co.....	26,500	6,100	.....	.....=	32,600
Total	284,000	108,300	303,000	177,500=	872,800

MAY 18.—By the steamer *Justin*, from Manáos and Pará:

Arnold & Zeiss.....	168,300	13,500	131,800	236,700=	550,300
New York Commercial Co...	50,900	34,500	73,000	23,100=	181,500
General Rubber Co.....	80,000	24,800	47,800	22,500=	175,100
Henderson & Korn.....	50,000	14,500	41,300	12,300=	118,100
Robinson & Co.....	34,000	7,300	22,000	19,900=	83,200
Meyer & Brown.....	14,800	8,800	4,100	33,600=	61,300
De Lagotellerie Co.....	2,500	300	19,200	.....=	22,000
Total	400,500	103,700	339,200	348,100=	1,191,500

MAY 21.—By the *Gregory* from Iquitos:

Thomsen & Co.....	18,300	1,100	4,200	5,800=	29,400
H. A. Astlett & Co.....	9,200	1,200	6,200	9,900=	26,500
P. C. Kuyper.....	1,800	.....	300	7,400=	9,500
G. Amsinck & Co.....	.....	.....	300	6,200=	6,500
In transit	.....	.....	.....	40,500=	40,500
Total	29,300	2,300	11,000	69,800=	112,400

MAY 25.—By the *Christopher* from Manáos and Pará:

Arnold & Zeiss.....	98,000	18,100	148,700	135,700=	401,500
Henderson & Korn.....	202,400	28,100	50,000	41,500=	322,000
Robinson & Co.....	15,400	300	5,800	4,500=	26,000
New York Commercial Co..	27,500	2,900	29,300	20,700=	80,400
General Rubber Co.....	32,500	11,000	28,900	3,300=	75,700
De Lagotellerie & Co.....	11,400	1,100	18,500	.....=	31,000
H. A. Astlett & Co.....	6,100	300	1,600	900=	8,900
G. Amsinck & Co.....	2,500	.....	2,600	2,200=	7,300
Total	395,800	61,800	286,400	208,800=	952,800

PARA RUBBER VIA EUROPE.

	Pounds.	
APRIL 29.—By the *Caronia*=Liverpool:		
General Rubber Co. (Fine)	180,000	
Raw Products Co. (Fine)	30,000	
New York Commercial Co. (Fine)	34,000	
Robinson & Co. (Fine)	28,000	272,000
MAY 6.—By the *Baltic*=Liverpool:		
Arnold & Zeiss (Fine)	10,000	
Raw Products Co. (Fine)	4,500	14,500
MAY 13.—By the *Carmania*=Liverpool:		
Raw Products Co. (Fine)		11,500
MAY 13.—By the *Amerika*=Hamburg:		
Ed. Maurer (Fine)		28,500
MAY 14.—By the *Lapland*=Antwerp:		
L. Blitz (Fine)		13,500
MAY 14.—By the *Saramaca*=Bolivar:		
Yglesias Lobo & Co. (Fine)	5,500	
Yglesias Lobo & Co. (Coarse)	4,000	
General Export Com. Co. (Fine)	5,000	
General Export Com. Co. (Coarse)	6,000	
American Trading Co. (Fine)	2,500	23,000
MAY 20.—By the *Celtic*=Liverpool:		
Robinson & Co. (Fine)	34,000	
General Rubber Co. (Fine)	11,000	45,000
MAY 21.—By the *Colon*=Mollendo:		
W. R. Grace & Co. (Fine)		4,500

OTHER NEW YORK ARRIVALS.

CENTRALS.

[*This sign, in connection with imports of Centrals, denotes Guayule rubber.]

	Pounds.	
APRIL 26.—By the *Colon*=Colon:		
G. Amsinck & Co.	9,000	
Piza Nephews & Co.	6,000	
Isaac Brandon & Bros.	3,000	
R. G. Barthold	2,000	
Laurence Johnson & Co.	2,000	
Charles E. Griffin	1,500	
Mecke & Co.	1,500	
Harburger & Stack	1,000	
Roldau & Van Sickle	1,000	27,000
APRIL 26.—By the *Chinese Prince*=Bahia:		
Adolph Hirsch & Co.	89,000	
J. H. Rossbach & Bros.	5,000	94,000
APRIL 27.—By the *Antilles*=New Orleans:		
Manhattan Rubber Co.	11,000	
Robinson & Co.	5,000	
Unknown	5,000	21,000
APRIL 29.—By the *Pretoria*=Hamburg:		
Henderson & Korn		125,000
APRIL 29.—By the *Mexico*=Frontera:		
Harburger & Stack	11,500	
E. Steiger & Co.	7,000	
A. H. Reid & Co.	3,500	22,000
APRIL 30.—By the *Albingia*=Colombia:		
Maitland, Coppell & Co.	30,000	
A. Held	3,500	
Caballero & Blanco	1,500	35,000
APRIL 30.—By the *Vigilancia*=Tampico:		
Ed. Maurer	*100,000	
New York Commercial Co.	*34,000	
Arnold & Zeiss	*25,000	
For Europe	*135,000	*294,000
APRIL 30.—By the *Minnetonka*=London:		
Arnold & Zeiss		22,500
APRIL 30.—By *El Sol*=Galveston:		
Continental-Mexican Rubber Co.	*40,000	
Charles T. Wilson	*10,000	*50,000
MAY 1.—By the *Prinz Joachim*=Colon:		
G. Amsinck & Co.	5,000	
Dumarest Bros. & Co.	3,500	
J. Sambrada & Co.	1,500	
Roldau & Van Sickle	1,000	
W. R. Grace & Co.	1,000	
A Rosenthal & Sons	1,000	
Suzarte & Whitney	1,000	14,000
MAY 2.—By *El Siglo*=Galveston:		
Continental-Mexican Rubber Co.		*70,000
MAY 2.—By the *Comus*=New Orleans:		
Eggers & Heinlein	3,500	
Unknown	10,000	13,500
MAY 4.—By the *Matanzas*=Tampico:		
Ed. Maurer	*90,000	
New York Commercial Co.	*90,000	
Arnold & Zeiss	*30,000	
H. Marquardt & Co.	*22,500	
For Hamburg	*50,000	*282,500
MAY 6.—By the *Vasari*=Bahia:		
J. H. Rossbach & Bros.	50,000	
Adolph Hirsch & Co.	10,000	60,000
MAY 6.—By the *Esperanza*=Frontera:		
Harburger & Stack	7,500	
Meyer & Brown	4,000	
General Export Comm. Co.	4,500	
H. Marquardt & Co.	4,500	
S. Steiger & Co.	3,000	
W. L. Wadleigh	2,000	
Mecke & Co.	2,000	
Hermann Kluge	1,500	
For Europe	9,000	38,000
MAY 7.—By the *Batavia*=Hamburg:		
Arnold & Zeiss	13,500	
Ed. Maurer	9,000	
Raw Products Co.	2,500	25,000
MAY 7.—By the *Altai*=Colombia:		
G. Amsinck & Co.	5,000	
Laurence Johnson & Co.	2,000	
A. Angel & Co.	1,500	
Pablo Calvet & Co.	1,000	9,500
MAY 7.—By the *President Grant*=Hamburg:		
Meyer & Brown		*30,000
MAY 8.—By the *Tagus*=Colombia:		
G. Amsinck & Co.	9,000	
J. Sambrada & Co.	7,000	
A. M. Capen's Sons	3,500	
A. Held	1,000	20,500
MAY 9.—By the *Panama*=Colon:		
G. Amsinck & Co.	26,500	
Isaac Brandon & Bros.	5,500	
Wessels Kulenkampff & Co.	3,500	
Hirzel, Feltman & Co.	2,500	
Charles E. Griffin	2,000	40,000
MAY 10.—By *El Cid*=New Orleans:		
Manhattan Rubber Co.	7,000	
Robinson & Co.	5,000	
G. Amsinck & Co.	3,500	
Unknown	8,000	23,500
MAY 13.—By the *Santiago*=Tampico:		
Arnold & Zeiss	*70,000	
Ed. Maurer	*70,000	
New York Commercial Co.	*67,000	
J. W. Wilson & Co.	*45,000	
For Hamburg	*45,000	*297,000
MAY 14.—By the *Minnewaska*=London:		
Arnold & Zeiss		30,000
MAY 14.—By the *Morro Castle*=Frontera:		
Harburger & Stack	3,500	
E. Steiger & Co.	2,500	
H. Marquardt & Co.	2,500	
J. W. Wilson & Co.	2,000	
E. Nelson Tibbals & Co.	2,000	
George A. Alden & Co.	1,000	
For Europe	3,000	16,500
MAY 15.—By the *Prinz August Wilhelm*—Colon:		
G. Amsinck & Co.	11,000	
Otto Gerdau Co.	5,000	
Maitland, Coppell & Co.	5,000	
A. Held	2,500	
Pablo Calvet & Co.	2,500	
Wessels Kulenkampff & Co.	2,000	
New York Commercial Co.	1,000	
J. Sambrada & Co.	1,000	
Dumarest Bros. & Co.	1,000	
Gillespie Bros. & Co.	1,000	32,000
MAY 15.—By the *Texan*=Mexico:		
Charles T. Wilson	5,500	
G. Amsinck & Co.	3,500	
George A. Alden & Co.	3,000	
Neuss Hesslein & Co.	2,000	
For Europe	13,500	27,500
MAY 15.—By the *Antilles*=New Orleans:		
Eggers & Heinlein	4,500	
Manhattan Rubber Mfg. Co.	3,500	
Meyer & Brown	2,500	
George A. Alden & Co.	2,000	
Unknown	13,500	26,000
MAY 16.—By *El Dia*=Galveston:		
Continental-Mexican Rubber Co.	*175,000	
Charles T. Wilson	*50,000	*225,000
MAY 18.—By the *Bayamo*=Tampico:		
New York Commercial Co.	*135,000	
Ed. Maurer	*70,000	
Arnold & Zeiss	*30,000	
For Europe	*56,000	*291,000
MAY 20.—By the *Monterey*=Vera Cruz:		
Willard Hawes & Co.	2,500	
American Trading Co.	2,000	
Charles E. Reade	1,000	
Harburger & Stack	1,000	6,500
MAY 20.—By the *Cincinnati*=Hamburg:		
Meyer & Brown	*37,000	
Ed. Maurer	*34,000	*71,000
MAY 21.—By the *Colon*=Colon:		
Mecke & Co.	3,500	
G. Amsinck & Co.	2,000	
A. L. Mareno	1,000	6,500
MAY 22.—By the *Tivives*=Colon:		
G. Amsinck & Co.	4,500	
Isaac Brandon & Bros.	2,000	
Wessels Kulenkampff & Co.	1,000	
Gillespie Bros. & Co.	1,000	8,500

AFRICAN.

	Pounds.	
APRIL 26.—By the *Kaiserin Auguste Victoria*= Hamburg:		
George A. Alden & Co.	30,000	
Henderson & Korn	33,500	
Wallace L. Gough Co.	13,500	
Meyer & Brown	5,500	
Rubber Trading Co.	5,500	88,000
APRIL 27.—By the *Adriatic*=Liverpool:		
General Rubber Co.	56,000	
Ed. Maurer	34,000	
George A. Alden & Co.	22,000	
James T. Johnstone	8,000	120,000
APRIL 29.—By *La Touraine*=Havre:		
General Rubber Co.	33,500	
Wallace L. Gough Co.	5,000	38,500
APRIL 29.—By the *Caronia*=Liverpool:		
Henderson & Korn	11,000	
Raw Products Co.	2,500	13,500
APRIL 29.—By the *Pretoria*=Hamburg:		
George A. Alden & Co.	34,000	
General Rubber Co.	14,000	
Ed. Maurer	11,500	
Rubber Trading Co.	10,000	
Robert Badenhop	6,000	75,500
APRIL 20.—By the *Roma*=Lisbon:		
Arnold & Zeiss	11,500	
Ed. Maurer	11,000	22,500
APRIL 30.—By the *Finland*=Antwerp:		
Meyer & Brown		11,000
MAY 1.—By the *Atlantian*=Liverpool:		
Ed. Maurer	11,500	
Arnold & Zeiss	7,000	18,500
MAY 6.—By the *Minnehaha*=London:		
General Rubber Co.	11,000	
Meyer & Brown	9,000	
Raw Products Co.	5,000	25,000
MAY 6.—By the *Baltic*=Liverpool:		
General Rubber Co.	35,000	
Ed. Maurer	25,000	
James T. Johnstone	7,000	
Arnold & Zeiss	5,500	
Raw Products Co.	4,500	
Henderson & Korn	3,000	
Robert Badenhop	3,500	83,500
MAY 7.—By the *Batavia*=Hamburg:		
Ed. Maurer	11,500	
General Rubber Co.	11,000	
Wallace L. Gough Co.	4,500	
Arnold & Zeiss	3,000	
Raw Products Co.	2,500	
Robert Badenhop	2,500	35,000
MAY 8.—By the *Vaderland*=Antwerp:		
Meyer & Brown	13,500	
Rubber Trading Co.	8,000	21,500
MAY 8.—By the *President Grant*=Hamburg:		
George A. Alden & Co.	73,000	
Meyer & Brown	27,000	100,000
MAY 9.—By the *Philadelphia*=London:		
Ed Maurer		13,500
MAY 11.—By the *Cedric*=Liverpool:		
James T. Johnstone	40,000	
George A. Alden & Co.	5,500	45,500
MAY 13.—By the *Carmania*=Liverpool:		
General Rubber Co.	56,000	
A. W. Brunn	7,000	63,000
MAY 13.—By the *Amerika*=Hamburg:		
Meyer & Brown	30,000	
Ed. Maurer	11,500	
General Rubber Co.	11,000	
George A. Alden & Co.	11,500	
Robert Badenhop	2,500	
Raw Products Co.	2,500	69,000
MAY 14.—By the *Lapland*=Antwerp:		
Meyer & Brown	34,000	
General Rubber Co.	35,000	
L. Blitz	11,000	
A. W. Brunn	5,000	85,000
MAY 14.—By the *Minnewaska*=London:		
George A. Alden & Co.	13,500	
General Rubber Co.	13,500	27,000
MAY 15.—By the *La Bretagne*=Havre:		
Ed. Maurer		35,000
MAY 17.—By the *Pennsylvania*=Hamburg:		
Ed. Maurer		18,000
MAY 18.—By the *Celtic*=Liverpool:		
Meyer & Brown		11,500
MAY 20.—By the *Cincinnati*=Hamburg:		
Ed. Maurer	70,000	
George A. Alden & Co.	35,000	
Meyer & Brown	16,000	
Arnold & Zeiss	13,500	
Wallace L. Gough Co.	10,000	
Henderson & Korn	3,500	
Robert Badenhop	3,500	151,500

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Auto Top Ducks
Specialties in Weaving

Third International

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3rd October, 1912

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Organizing Manager.

MISS D. FULTON,
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MAY 20.—By the *New York*=London:

George A. Alden & Co.	8,000	
General Rubber Co.	3,500	11,500

MAY 22.—By the *Germania*=Lisbon:

Ed. Maurer	45,000	
George A. Alden & Co.	22,500	
Wallace L. Gough Co.	11,500	79,000

MAY 22.—By the *Kroonland*=Antwerp:

Meyer & Brown	11,000	
Henderson & Korn	4,500	15,500

EAST INDIAN.

[*Denotes plantation rubber.]

	Pounds.	
APRIL 25.—By the *Indradeo*=Singapore:		
Ed. Maurer	*18,000	
Otto Isenstein & Co.	*13,500	
Arnold & Zeiss	15,500	
Haebler & Co.	5,000	
Otto Isenstein & Co.	13,500	65,500
APRIL 26.—By the *Kaiserin Auguste Victoria*=Hamburg:		
George A. Alden & Co.		13,500
APRIL 26.—By the *Inverclyde*=Singapore:		
Ed. Maurer	*22,500	
Haebler & Co.	*11,500	
New York Commercial Co.	*3,500	
Wallace L. Gough Co.	*3,500	
United Malaysian Rubber Co.	22,500	63,500
APRIL 29.—By the *Pretoria*=Hamburg:		
Ed. Maurer		*11,000
APRIL 29.—By the *Kasenga*=Colombo:		
Meyer & Brown	*56,000	
New York Commercial Co.	*8,000	*64,000
APRIL 29.—By the *Winifredian*=London:		
General Rubber Co.	*155,000	
Arnold & Zeiss	*35,000	
New York Commercial Co.	*45,000	
Meyer & Brown	*22,500	
Ed. Maurer	*11,500	
Charles T. Wilson	*13,500	
In transit	*30,000	*312,500
APRIL 30.—By the *Finland*=Antwerp:		
Meyer & Brown		*11,500
APRIL 30.—By the *Minnetonka*=London:		
New York Commercial Co.	*160,000	
Arnold & Zeiss	*100,000	
General Rubber Co.	*80,000	
Ed. Maurer	*35,000	
Meyer & Brown	*35,000	
Henderson & Korn	*22,500	
Robinson & Co.	*22,500	
James T. Johnstone	*11,000	
Raw Products Co.	*7,000	
Charles T. Wilson	*7,000	
In transit	*22,000	
Arnold & Zeiss	11,500	513,500
MAY 6.—By the *Baltic*=Liverpool:		
Ed. Maurer		*15,000
MAY 6.—By the *Minnehaha*=London:		
General Rubber Co.	*170,000	
Henderson & Korn	*90,000	
Ed. Maurer	*60,000	
Meyer & Brown	*55,000	
New York Commercial Co.	*50,000	
James T. Johnstone	*22,500	
Raw Products Co.	*11,500	
Charles T. Wilson	*3,000	
In transit	*20,000	
Henderson & Korn	13,500	
George A. Alden & Co.	11,000	
Charles T. Wilson	6,500	513,000
MAY 8.—By the *Vaderland*=Antwerp:		
Meyer & Brown	*115,000	
Henderson & Korn	*17,000	
General Rubber Co.	*11,000	*143,000
MAY 9.—By the *Philadelphia*=London:		
Arnold & Zeiss	*65,000	
New York Commercial Co.	*17,000	
In transit	*60,000	
Arnold & Zeiss	13,500	155,500
MAY 10.—By the *Kasenga*=Singapore:		
Ed. Maurer	*15,500	
Haebler & Co.	*7,000	
Ed. Maurer	55,000	
Otto Isenstein & Co.	11,000	
Arnold & Zeiss	9,000	97,500
MAY 11.—By the *Katuna*=Colombo:		
Meyer & Brown	*100,000	
New York Commercial Co.	*50,000	*150,000
MAY 13.—By the *Carmania*=Liverpool:		
Ed. Maurer		*11,500
MAY 14.—By the *Lapland*=Antwerp:		
Meyer & Brown	*50,000	
Arnold & Zeiss	*22,500	
Rubber Trading Co.	*5,500	*78,000
MAY 14.—By the *Minnewaska*=London:		
Henderson & Korn	*90,000	
Arnold & Zeiss	*80,000	
New York Commercial Co.	*65,000	
Ed. Maurer	*55,000	
Meyer & Brown	*15,000	
Charles T. Wilson	*10,000	
James T. Johnstone	*7,000	
Rubber Trading Co.	*9,000	
In transit	*80,000	
George A. Alden & Co.	15,000	426,000
MAY 16.—By the *Oceanic*=London:		
New York Commercial Co.	*118,000	
Arnold & Zeiss	*55,000	
James T. Johnstone	*45,000	
Meyer & Brown	*30,000	
Ed. Maurer	*18,000	*266,000
MAY 16.—By the *Fangturn*=Colombo:		
New York Commercial Co.	*70,000	
Meyer & Brown	*16,000	
Robert Badenhop	*11,500	*97,500
MAY 20.—By the *New York*=London:		
Arnold & Zeiss	*65,000	
New York Commercial Co.	*65,000	
Rubber Trading Co.	*3,500	
In transit	*25,000	*158,500
MAY 21.—By the *Kroonland*=Antwerp:		
Meyer & Brown	*45,000	
Rubber Trading Co.	*7,000	*52,000
MAY 23.—By the *Olympic*=London:		
Arnold & Zeiss	*55,000	
New York Commercial Co.	*34,000	
Henderson & Korn	*22,500	
Meyer & Brown	*22,500	
Ed. Maurer	*7,000	
William H. Stiles	*4,500	
In transit	*78,000	
Robinson & Co.	10,000	233,500

GUTTA-JELUTONG.

	Pounds.	
APRIL 25.—By the *Indradeo*=Singapore:		
L. Littlejohn & Co.	225,000	
Wallace L. Gough Co.	100,000	
A. W. Brunn	55,000	380,000
APRIL 26.—By the *Inverclyde*=Singapore:		
L. Littlejohn & Co.	450,000	
Haebler & Co.	250,000	
Wallace L. Gough Co.	155,000	855,000
MAY 8.—By the *Noordam*=Rotterdam:		
L. Littlejohn & Co.	33,000	
Wallace L. Gough Co.	22,000	55,000
MAY 10.—By the *Kasenga*=Singapore:		
L. Littlejohn & Co.	1,550,000	
Haebler & Co.	350,000	
Wallace L. Gough Co.	150,000	
Winter & Smillie	100,000	
George A. Alden & Co.	90,000	2,240,000
MAY 14.—By the *Ryndam*=Rotterdam:		
L. Littlejohn & Co.	200,000	
Manhattan Rubber Mfg. Co.	5,000	205,000

GUTTA-PERCHA.

	Pounds.
APRIL 25.—By the *Indradeo*=Singapore:	
Haebler & Co.	55,000
APRIL 26.—By the *Kaiserin Auguste Victoria*=Hamburg:	
Robert Soltau & Co.	15,000
APRIL 13.—By the *Amerika*=Hamburg:	
Robert Soltau & Co.	9,000

BALATA.

APRIL 29.—By the *Pretoria*=Hamburg:	
Ed. Maurer	5,500
MAY 1.—By the *Coppename*=Trinidad:	
G. Amsinck & Co.	11,500
Schutte, Bunemann & Co.	6,000
Suzarte & Whitney	1,000
George A. Alden & Co.	1,000
	19,500
MAY 14.—By the *Saramaca*=Bolivar:	
Yglesias Lobo & Co.	4,500
G. Amsinck & Co.	1,500
American Trading Co.	3,000
	9,000
MAY 21.—By the *Marowijne*=Trinidad:	
Yglesias Lobo & Co.	10,000
Bartling & De Leon	2,000
	12,000

BOSTON ARRIVALS.

	Pounds.
APRIL 8.—By the *Canadian*=Liverpool:	
Arnold & Zeiss (African)	7,100
APRIL 15.—By the *Bulgaria*=Hamburg:	
George A. Alden & Co. (African)	11,500
APRIL 18.—By the *Pathan* Singapore:	
State Rubber Co. (East Indian)	*41,500
APRIL 10.—By the *Shimosa*=Singapore:	
L. Littlejohn & Co. (Jelutong)	450,000
APRIL 18.—By the *Pathan*=Singapore:	
L. Littlejohn & Co. (Jelutong)	220,000
State Rubber Co. (Jelutong)	250,000
	470,000
APRIL 22.—By the *Inverclyde*=Singapore:	
L. Littlejohn & Co. (Jelutong)	450,000

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK, APRIL, 1912.

Imports:	Pounds.	Value.
India-rubber	12,729,915	$11,143,373
Balata	38,404	21,367
Guayule	971,150	494,672
Gutta-percha	180,891	35,989
Gutta-jelutong (Pontianak)	4,597,975	205,688
Total	18,518,335	$11,901,089
Exports:		
India-rubber	105,796	$89,290
Balata	880	360
Guayule	.....	.....
Gutta-percha	.....	.....
Reclaimed rubber	54,245	9,745
Gutta-jelutong (Pontianak)	109,646	5,483
Rubber scrap, imported	1,903,555	$167,795
Rubber scrap, exported	416,598	52,426

EXPORTS OF INDIA-RUBBER FROM PARA FOR APRIL, 1912 (IN KILOGRAMS).

	NEW YORK.					EUROPE.					
EXPORTERS.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	Fine.	Medium.	Coarse.	Caucho.	TOTAL.	TOTAL.
Zarges, Berringer & Co.	62,952	15,566	216,305	102,324	397,147	90,864	21,041	15,235	53,511	180,651	577,798
Ad. H. Alden, Ltd.	32,253	3,320	69,726	20,572	125,871	40,630	3,910	36,300	.....	80,840	206,711
R. O. Ahlers & Co.	74,880	5,746	12,347	45,835	138,808	42,934	807	7,227	11,997	62,965	201,773
Suárez Hermanos & Co., Ltd.	.....	.....	.....	.....	.....	144,429	701	2,892	46,341	194,363	194,363
General Rubber Co. of Brazil.	34,516	4,015	31,116	18,480	88,127	31,774	6,362	15,986	22,534	76,656	164,783
M. Ulmann & Co.	.....	.....	.....	.....	.....	7,410	.....	6,260	70,840	84,510	84,510
De Lagotellerie & Co.	10,880	850	18,480	.....	30,210	.....	.....	.....	.....	.....	30,210
Pires Teixeira & Co.	13,090	1,020	11,880	.....	25,990	.....	.....	.....	.....	.....	25,990
Nunes Sobrinho & Co.	3,570	340	990	280	5,180	10,100	2,084	3,936	734	16,854	22,034
Sundries	1,020	.....	6,600	840	8,460	2,115	105	430	.....	2,650	11,110
Itacoatiará, direct	.....	.....	.....	.....	.....	1,860	1,680	1,007	.....	4,547	4,547
	233,161	30,857	367,444	188,331	819,793	372,116	36,690	89,273	205,957	704,036	1,523,829
Manáos, direct	241,221	98,208	118,392	63,189	521,010	287,498	53,139	79,892	122,692	543,221	1,064,231
Iquitos, direct	.....	.....	.....	.....	.....	139,807	17,953	37,400	295,972	491,132	491,132
Total, April, 1912.	474,382	129,065	485,836	251,520	1,340,803	799,421	107,782	206,565	624,621	1,738,389	3,079,192
Total, March, 1912.	928,549	268,394	828,225	639,217	2,664,385	1,114,992	169,333	317,312	619,521	2,221,158	4,885,543
Total, February, 1912.	1,162,009	304,910	771,647	405,698	2,644,264	1,474,610	126,185	291,077	600,644	2,492,516	5,136,780
Total, January, 1912.	752,317	112,959	437,915	64,926	1,368,171	1,382,605	180,547	339,253	451,773	2,354,178	3,722,295

INDIA RUBBER WORLD

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THE ALL-CEYLON EXHIBITION AT COLOMBO.

It is expected that rubber will be represented on a very complete and unusually large scale at the "All-Ceylon Exhibition" to be held at Colombo from July 1 to July 6 next. No less than 17 classes will be devoted to rubber, and to the machinery, tools, etc., connected with that industry. The exhibition will as far as possible be divided into districts, and a number of valuable prizes will be offered.

Antwerp.

RUBBER ARRIVALS FOR APRIL.

DETAILS—	1912.	1911.	1910.	1909.	1908.
Stocks, March 31..*kilos*	359,016	645,614	499,102	595,855	1,136,892
Arrivals in April—					
Congo sorts	360,605	131,553	340,456	219,645	175,000
Other sorts	15,117	44,791	40,014	91,908	29,016
Plantation sorts	129,715	90,033	49,400	18,724	7,533
Aggregating	864,453	911,991	928,972	926,132	1,348,441
Sales in April	426,940	312,877	458,504	318,345	630,528
Stocks, April 30	437,513	599,114	470,468	607,787	717,913
Congo sorts	1,091,077	1,072,515	1,171,286	1,001,032	1,522,423
Other sorts	45,735	205,968	120,169	368,972	173,734
Plantation sorts	407,325	257,562	178,094	88,365	33,201
Arrivals since Jan. 1	1,544,137	1,536,045	1,469,549	1,458,369	1,729,358
Sales since January 1	1,781,162	1,525,143	1,540,593	1,446,317	2,018,339

RUBBER ARRIVALS FROM THE CONGO.

APRIL 30.—By the steamer *Leopoldville:*

Bunge & Co	(Société Générale Africaine)	*kilos* 104,000	
do	(Chemins de fer Grands lacs)	10,000	
do	(Cie. du Kasai)	62,000	
do	(Comfina)	125	
Société Coloniale Anversoise	(Haut Congo)	2,000	
do	(Aliment. du Bas Congo)	1,200	
do	(Cie. franc. du Haut Congo)	4,850	
L. & W. Van de Velde	(Comfina)	15,500	
do	(Comminiere)	17,500	
do		5,000	
Charles Dethier	(American Congo Co.)	6,600	
Congo Trading Co		6,200	
Willaert Freres		5,000	
Osterreith & Co		1,400	
Société Générale de Commerce	(Alimaienne)	750	242,125

Plantation Rubber from the Far East.

EXPORTS OF CEYLON GROWN RUBBER.

[From January 1 to April 22, 1911 and 1912. Compiled by the Ceylon Chamber of Commerce.]

	1911.	1912.
To Great Britain ..... *pounds*	831,658	1,950,654
To United States	545,374	1,234,188
To Belgium	89,364	451,218
To Germany	7,585	39,905
To Australia	12,613	34,002
To Canada	9,971	12,121
To Japan	11,953	5,687
To Austria	.....	5,320
To Italy	750	4,692
To Norway and Sweden	.....	39
To Holland	100	.....
To India	40	.....
Total	1,509,408	3,737,826

[Same period 1910—740,937; same 1909—296,068.]

TOTAL EXPORTS FROM MALAYA.

[From January 1 to dates named. Reported by Barlow & Co., Singapore. These figures include the production of the Federated Malay States, but not of Ceylon.]

To—	Singapore. April 16.	Penang. March 31.	Port Swettenham. April 15.	Total 1912.
Great Britain ..*pounds*	2,873,085	2,326,667	4,112,200	9,311,952
Continent	80,573	55,866	493,694	630,133
Japan	75,977	6,457	.....	82,434
Australia	12,304	.....	.....	12,304
Ceylon	.....	45,729	147,599	193,328
United States	685,279	.....	.....	685,279
Total	3,727,218	2,434,719	4,753,493	10,915,430
Same period, 1911	1,676,849	1,187,438	3,765,400	6,629,687
Same period 1910	944,557	489,755	2,215,583	3,649,895
Same period, 1909	832,793	786,903	.....	1,619,696

INCREASED RUBBER IMPORTS.

As illustrating the expansion of the American rubber industry, it is of interest to note that the official statistics for the nine months ending March 31 last, of United States imports of india-rubber, show a quantity of 80,730,111 pounds as compared with 54,029,940 pounds for the corresponding period a year earlier. These figures are for india-rubber alone, apart from balata, guayule, gutta jelutong and gutta percha. The statement in a daily journal that the imports of crude rubber for the ten months ending April 30, 1912, were 425,000,000 pounds, as compared with 303,000,000 pounds in 1911, is an obvious mistake.